HP ProLiant ML350 Gen9 Server Maintenance and Service Guide

Abstract

This guide describes identification and maintenance procedures, diagnostic tools, specifications, and requirements for hardware components and software. This guide is for an experienced service technician. HP assumes you are qualified in the servicing of computer equipment, trained in recognizing hazards in products, and are familiar with weight and stability precautions.

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Customer self repair

HP products are designed with many Customer Self Repair (CSR) parts to minimize repair time and allow for greater flexibility in performing defective parts replacement. If during the diagnosis period HP (or HP service providers or service partners) identifies that the repair can be accomplished by the use of a CSR part, HP will ship that part directly to you for replacement. There are two categories of CSR parts:

- **Mandatory**—Parts for which customer self repair is mandatory. If you request HP to replace these parts, you will be charged for the travel and labor costs of this service.
- **Optional**—Parts for which customer self repair is optional. These parts are also designed for customer self repair. If, however, you require that HP replace them for you, there may or may not be additional charges, depending on the type of warranty service designated for your product.

NOTE: Some HP parts are not designed for customer self repair. In order to satisfy the customer warranty, HP requires that an authorized service provider replace the part. These parts are identified as "No" in the Illustrated Parts Catalog.

Based on availability and where geography permits, CSR parts will be shipped for next business day delivery. Same day or four-hour delivery may be offered at an additional charge where geography permits. If assistance is required, you can call the HP Technical Support Center and a technician will help you over the telephone. HP specifies in the materials shipped with a replacement CSR part whether a defective part must be returned to HP. In cases where it is required to return the defective part to HP, you must ship the defective part back to HP within a defined period of time, normally five (5) business days. The defective part must be returned with the associated documentation in the provided shipping material. Failure to return the defective part may result in HP billing you for the replacement. With a customer self repair, HP will pay all shipping and part return costs and determine the courier/carrier to be used.

For more information about HP's Customer Self Repair program, contact your local service provider. For the North American program, refer to the HP website (http://www.hp.com/go/selfrepair).

Parts only warranty service

Your HP Limited Warranty may include a parts only warranty service. Under the terms of parts only warranty service, HP will provide replacement parts free of charge.

For parts only warranty service, CSR part replacement is mandatory. If you request HP to replace these parts, you will be charged for the travel and labor costs of this service.

Réparation par le client (CSR)

Les produits HP comportent de nombreuses pièces CSR (Customer Self Repair = réparation par le client) afin de minimiser les délais de réparation et faciliter le remplacement des pièces défectueuses. Si pendant la période de diagnostic, HP (ou ses partenaires ou mainteneurs agréés) détermine que la réparation peut être effectuée à l'aide d'une pièce CSR, HP vous l'envoie directement. Il existe deux catégories de pièces CSR:

Obligatoire - Pièces pour lesquelles la réparation par le client est obligatoire. Si vous demandez à HP de remplacer ces pièces, les coûts de déplacement et main d'œuvre du service vous seront facturés.

Facultatif - Pièces pour lesquelles la réparation par le client est facultative. Ces pièces sont également conçues pour permettre au client d'effectuer lui-même la réparation. Toutefois, si vous demandez à HP de remplacer ces pièces, l'intervention peut ou non vous être facturée, selon le type de garantie applicable à votre produit.

REMARQUE: Certaines pièces HP ne sont pas conçues pour permettre au client d'effectuer lui-même la réparation. Pour que la garantie puisse s'appliquer, HP exige que le remplacement de la pièce soit effectué par un Mainteneur Agréé. Ces pièces sont identifiées par la mention "Non" dans le Catalogue illustré.

Les pièces CSR sont livrées le jour ouvré suivant, dans la limite des stocks disponibles et selon votre situation géographique. Si votre situation géographique le permet et que vous demandez une livraison le jour même ou dans les 4 heures, celle-ci vous sera facturée. Pour bénéficier d'une assistance téléphonique, appelez le Centre d'assistance technique HP. Dans les documents envoyés avec la pièce de rechange CSR, HP précise s'il est nécessaire de lui retourner la pièce défectueuse. Si c'est le cas, vous devez le faire dans le délai indiqué, généralement cinq (5) jours ouvrés. La pièce et sa documentation doivent être retournées dans l'emballage fourni. Si vous ne retournez pas la pièce défectueuse, HP se réserve le droit de vous facturer les coûts de remplacement. Dans le cas d'une pièce CSR, HP supporte l'ensemble des frais d'expédition et de retour, et détermine la société de courses ou le transporteur à utiliser.

Pour plus d'informations sur le programme CSR de HP, contactez votre Mainteneur Agrée local. Pour plus d'informations sur ce programme en Amérique du Nord, consultez le site Web HP (http://www.hp.com/go/selfrepair).

Service de garantie "pièces seules"

Votre garantie limitée HP peut inclure un service de garantie "pièces seules". Dans ce cas, les pièces de rechange fournies par HP ne sont pas facturées.

Dans le cadre de ce service, la réparation des pièces CSR par le client est obligatoire. Si vous demandez à HP de remplacer ces pièces, les coûts de déplacement et main d'œuvre du service vous seront facturés.

Riparazione da parte del cliente

Per abbreviare i tempi di riparazione e garantire una maggiore flessibilità nella sostituzione di parti difettose, i prodotti HP sono realizzati con numerosi componenti che possono essere riparati direttamente dal cliente (CSR, Customer Self Repair). Se in fase di diagnostica HP (o un centro di servizi o di assistenza HP) identifica il guasto come riparabile mediante un ricambio CSR, HP lo spedirà direttamente al cliente per la sostituzione. Vi sono due categorie di parti CSR:

Obbligatorie – Parti che devono essere necessariamente riparate dal cliente. Se il cliente ne affida la riparazione ad HP, deve sostenere le spese di spedizione e di manodopera per il servizio.

Opzionali – Parti la cui riparazione da parte del cliente è facoltativa. Si tratta comunque di componenti progettati per questo scopo. Se tuttavia il cliente ne richiede la sostituzione ad HP, potrebbe dover sostenere spese addizionali a seconda del tipo di garanzia previsto per il prodotto.

NOTA: alcuni componenti HP non sono progettati per la riparazione da parte del cliente. Per rispettare la garanzia, HP richiede che queste parti siano sostituite da un centro di assistenza autorizzato. Tali parti sono identificate da un "No" nel Catalogo illustrato dei componenti.

In base alla disponibilità e alla località geografica, le parti CSR vengono spedite con consegna entro il giorno lavorativo seguente. La consegna nel giorno stesso o entro quattro ore è offerta con un supplemento di costo solo in alcune zone. In caso di necessità si può richiedere l'assistenza telefonica di un addetto del centro di supporto tecnico HP. Nel materiale fornito con una parte di ricambio CSR, HP specifica se il cliente deve restituire dei componenti. Qualora sia richiesta la resa ad HP del componente difettoso, lo si deve spedire ad HP entro un determinato periodo di tempo, generalmente cinque (5) giorni lavorativi. Il componente difettoso deve essere restituito con la documentazione associata nell'imballo di spedizione fornito. La mancata restituzione del componente può comportare la fatturazione del ricambio da parte di HP. Nel caso di riparazione da parte del cliente, HP sostiene tutte le spese di spedizione e resa e sceglie il corriere/vettore da utilizzare.

Per ulteriori informazioni sul programma CSR di HP contattare il centro di assistenza di zona. Per il programma in Nord America fare riferimento al sito Web HP (http://www.hp.com/go/selfrepair).

Servizio di garanzia per i soli componenti

La garanzia limitata HP può includere un servizio di garanzia per i soli componenti. Nei termini di garanzia del servizio per i soli componenti, HP fornirà gratuitamente le parti di ricambio.

Per il servizio di garanzia per i soli componenti è obbligatoria la formula CSR che prevede la riparazione da parte del cliente. Se il cliente invece richiede la sostituzione ad HP, dovrà sostenere le spese di spedizione e di manodopera per il servizio.

Customer Self Repair

HP Produkte enthalten viele CSR-Teile (Customer Self Repair), um Reparaturzeiten zu minimieren und höhere Flexibilität beim Austausch defekter Bauteile zu ermöglichen. Wenn HP (oder ein HP Servicepartner) bei der Diagnose feststellt, dass das Produkt mithilfe eines CSR-Teils repariert werden kann, sendet Ihnen HP dieses Bauteil zum Austausch direkt zu. CSR-Teile werden in zwei Kategorien unterteilt:

Zwingend – Teile, für die das Customer Self Repair-Verfahren zwingend vorgegeben ist. Wenn Sie den Austausch dieser Teile von HP vornehmen lassen, werden Ihnen die Anfahrt- und Arbeitskosten für diesen Service berechnet.

Optional – Teile, für die das Customer Self Repair-Verfahren optional ist. Diese Teile sind auch für Customer Self Repair ausgelegt. Wenn Sie jedoch den Austausch dieser Teile von HP vornehmen lassen möchten, können bei diesem Service je nach den für Ihr Produkt vorgesehenen Garantiebedingungen zusätzliche Kosten anfallen.

HINWEIS: Einige Teile sind nicht für Customer Self Repair ausgelegt. Um den Garantieanspruch des Kunden zu erfüllen, muss das Teil von einem HP Servicepartner ersetzt werden. Im illustrierten Teilekatalog sind diese Teile mit „No" bzw. „Nein" gekennzeichnet.

CSR-Teile werden abhängig von der Verfügbarkeit und vom Lieferziel am folgenden Geschäftstag geliefert. Für bestimmte Standorte ist eine Lieferung am selben Tag oder innerhalb von vier Stunden gegen einen Aufpreis verfügbar. Wenn Sie Hilfe benötigen, können Sie das HP technische Support Center anrufen und sich von einem Mitarbeiter per Telefon helfen lassen. Den Materialien, die mit einem CSR-Ersatzteil geliefert werden, können Sie entnehmen, ob das defekte Teil an HP zurückgeschickt werden muss. Wenn es erforderlich ist, das defekte Teil an HP zurückzuschicken, müssen Sie dies innerhalb eines vorgegebenen Zeitraums tun, in der Regel innerhalb von fünf (5) Geschäftstagen. Das defekte Teil muss mit der zugehörigen Dokumentation in der Verpackung zurückgeschickt werden, die im Lieferumfang enthalten ist. Wenn Sie das

defekte Teil nicht zurückschicken, kann HP Ihnen das Ersatzteil in Rechnung stellen. Im Falle von Customer Self Repair kommt HP für alle Kosten für die Lieferung und Rücksendung auf und bestimmt den Kurier-/Frachtdienst.

Weitere Informationen über das HP Customer Self Repair Programm erhalten Sie von Ihrem Servicepartner vor Ort. Informationen über das CSR-Programm in Nordamerika finden Sie auf der HP Website unter (http://www.hp.com/go/selfrepair).

Parts-only Warranty Service (Garantieservice ausschließlich für Teile)

Ihre HP Garantie umfasst möglicherweise einen Parts-only Warranty Service (Garantieservice ausschließlich für Teile). Gemäß den Bestimmungen des Parts-only Warranty Service stellt HP Ersatzteile kostenlos zur Verfügung.

Für den Parts-only Warranty Service ist das CSR-Verfahren zwingend vorgegeben. Wenn Sie den Austausch dieser Teile von HP vornehmen lassen, werden Ihnen die Anfahrt- und Arbeitskosten für diesen Service berechnet.

Reparaciones del propio cliente

Los productos de HP incluyen muchos componentes que el propio usuario puede reemplazar (*Customer Self Repair*, CSR) para minimizar el tiempo de reparación y ofrecer una mayor flexibilidad a la hora de realizar sustituciones de componentes defectuosos. Si, durante la fase de diagnóstico, HP (o los proveedores o socios de servicio de HP) identifica que una reparación puede llevarse a cabo mediante el uso de un componente CSR, HP le enviará dicho componente directamente para que realice su sustitución. Los componentes CSR se clasifican en dos categorías:

- **Obligatorio:** componentes para los que la reparación por parte del usuario es obligatoria. Si solicita a HP que realice la sustitución de estos componentes, tendrá que hacerse cargo de los gastos de desplazamiento y de mano de obra de dicho servicio.
- **Opcional:** componentes para los que la reparación por parte del usuario es opcional. Estos componentes también están diseñados para que puedan ser reparados por el usuario. Sin embargo, si precisa que HP realice su sustitución, puede o no conllevar costes adicionales, dependiendo del tipo de servicio de garantía correspondiente al producto.

NOTA: Algunos componentes no están diseñados para que puedan ser reparados por el usuario. Para que el usuario haga valer su garantía, HP pone como condición que un proveedor de servicios autorizado realice la sustitución de estos componentes. Dichos componentes se identifican con la palabra "No" en el catálogo ilustrado de componentes.

Según la disponibilidad y la situación geográfica, los componentes CSR se enviarán para que lleguen a su destino al siguiente día laborable. Si la situación geográfica lo permite, se puede solicitar la entrega en el mismo día o en cuatro horas con un coste adicional. Si precisa asistencia técnica, puede llamar al Centro de asistencia técnica de HP y recibirá ayuda telefónica por parte de un técnico. Con el envío de materiales para la sustitución de componentes CSR, HP especificará si los componentes defectuosos deberán devolverse a HP. En aquellos casos en los que sea necesario devolver algún componente a HP, deberá hacerlo en el periodo de tiempo especificado, normalmente cinco días laborables. Los componentes defectuosos deberán devolverse con toda la documentación relacionada y con el embalaje de envío. Si no

enviara el componente defectuoso requerido, HP podrá cobrarle por el de sustitución. En el caso de todas sustituciones que lleve a cabo el cliente, HP se hará cargo de todos los gastos de envío y devolución de componentes y escogerá la empresa de transporte que se utilice para dicho servicio.

Para obtener más información acerca del programa de Reparaciones del propio cliente de HP, póngase en contacto con su proveedor de servicios local. Si está interesado en el programa para Norteamérica, visite la página web de HP siguiente (http://www.hp.com/go/selfrepair).

Servicio de garantía exclusivo de componentes

La garantía limitada de HP puede que incluya un servicio de garantía exclusivo de componentes. Según las condiciones de este servicio exclusivo de componentes, HP le facilitará los componentes de repuesto sin cargo adicional alguno.

Para este servicio de garantía exclusivo de componentes, es obligatoria la sustitución de componentes por parte del usuario (CSR). Si solicita a HP que realice la sustitución de estos componentes, tendrá que hacerse cargo de los gastos de desplazamiento y de mano de obra de dicho servicio.

Customer Self Repair

Veel onderdelen in HP producten zijn door de klant zelf te repareren, waardoor de reparatieduur tot een minimum beperkt kan blijven en de flexibiliteit in het vervangen van defecte onderdelen groter is. Deze onderdelen worden CSR-onderdelen (Customer Self Repair) genoemd. Als HP (of een HP Service Partner) bij de diagnose vaststelt dat de reparatie kan worden uitgevoerd met een CSR-onderdeel, verzendt HP dat onderdeel rechtstreeks naar u, zodat u het defecte onderdeel daarmee kunt vervangen. Er zijn twee categorieën CSR-onderdelen:

Verplicht: Onderdelen waarvoor reparatie door de klant verplicht is. Als u HP verzoekt deze onderdelen voor u te vervangen, worden u voor deze service reiskosten en arbeidsloon in rekening gebracht.

Optioneel: Onderdelen waarvoor reparatie door de klant optioneel is. Ook deze onderdelen zijn ontworpen voor reparatie door de klant. Als u echter HP verzoekt deze onderdelen voor u te vervangen, kunnen daarvoor extra kosten in rekening worden gebracht, afhankelijk van het type garantieservice voor het product.

OPMERKING: Sommige HP onderdelen zijn niet ontwikkeld voor reparatie door de klant. In verband met de garantievoorwaarden moet het onderdeel door een geautoriseerde Service Partner worden vervangen. Deze onderdelen worden in de geïllustreerde onderdelencatalogus aangemerkt met "Nee".

Afhankelijk van de leverbaarheid en de locatie worden CSR-onderdelen verzonden voor levering op de eerstvolgende werkdag. Levering op dezelfde dag of binnen vier uur kan tegen meerkosten worden aangeboden, indien dit mogelijk is gezien de locatie. Indien assistentie gewenst is, belt u een HP Service Partner om via de telefoon technische ondersteuning te ontvangen. HP vermeldt in de documentatie bij het vervangende CSR-onderdeel of het defecte onderdeel aan HP moet worden geretourneerd. Als het defecte onderdeel aan HP moet worden teruggezonden, moet u het defecte onderdeel binnen een bepaalde periode, gewoonlijk vijf (5) werkdagen, retourneren aan HP. Het defecte onderdeel moet met de bijbehorende documentatie worden geretourneerd in het meegeleverde verpakkingsmateriaal. Als u het defecte onderdeel niet terugzendt, kan HP u voor het vervangende onderdeel kosten in rekening brengen. Bij reparatie door de klant betaalt HP alle verzendkosten voor het vervangende en geretourneerde onderdeel en kiest HP zelf welke koerier/transportonderneming hiervoor wordt gebruikt.

Neem contact op met een Service Partner voor meer informatie over het Customer Self Repair programma van HP. Informatie over Service Partners vindt u op de HP website (http://www.hp.com/go/selfrepair).

Garantieservice "Parts Only"

Het is mogelijk dat de HP garantie alleen de garantieservice "Parts Only" omvat. Volgens de bepalingen van de Parts Only garantieservice zal HP kosteloos vervangende onderdelen ter beschikking stellen.

Voor de Parts Only garantieservice is vervanging door CSR-onderdelen verplicht. Als u HP verzoekt deze onderdelen voor u te vervangen, worden u voor deze service reiskosten en arbeidsloon in rekening gebracht.

Reparo feito pelo cliente

Os produtos da HP são projetados com muitas peças para reparo feito pelo cliente (CSR) de modo a minimizar o tempo de reparo e permitir maior flexibilidade na substituição de peças com defeito. Se, durante o período de diagnóstico, a HP (ou fornecedores/parceiros de serviço da HP) concluir que o reparo pode ser efetuado pelo uso de uma peça CSR, a peça de reposição será enviada diretamente ao cliente. Existem duas categorias de peças CSR:

Obrigatória – Peças cujo reparo feito pelo cliente é obrigatório. Se desejar que a HP substitua essas peças, serão cobradas as despesas de transporte e mão-de-obra do serviço.

Opcional – Peças cujo reparo feito pelo cliente é opcional. Essas peças também são projetadas para o reparo feito pelo cliente. No entanto, se desejar que a HP as substitua, pode haver ou não a cobrança de taxa adicional, dependendo do tipo de serviço de garantia destinado ao produto.

OBSERVAÇÃO: Algumas peças da HP não são projetadas para o reparo feito pelo cliente. A fim de cumprir a garantia do cliente, a HP exige que um técnico autorizado substitua a peça. Essas peças estão identificadas com a marca "No" (Não), no catálogo de peças ilustrado.

Conforme a disponibilidade e o local geográfico, as peças CSR serão enviadas no primeiro dia útil após o pedido. Onde as condições geográficas permitirem, a entrega no mesmo dia ou em quatro horas pode ser feita mediante uma taxa adicional. Se precisar de auxílio, entre em contato com o Centro de suporte técnico da HP para que um técnico o ajude por telefone. A HP especifica nos materiais fornecidos com a peça CSR de reposição se a peça com defeito deve ser devolvida à HP. Nos casos em que isso for necessário, é preciso enviar a peça com defeito à HP dentro do período determinado, normalmente cinco (5) dias úteis. A peça com defeito deve ser enviada com a documentação correspondente no material de transporte fornecido. Caso não o faça, a HP poderá cobrar a reposição. Para as peças de reparo feito pelo cliente, a HP paga todas as despesas de transporte e de devolução da peça e determina a transportadora/serviço postal a ser utilizado.

Para obter mais informações sobre o programa de reparo feito pelo cliente da HP, entre em contato com o fornecedor de serviços local. Para o programa norte-americano, visite o site da HP (http://www.hp.com/go/selfrepair).

Serviço de garantia apenas para peças

A garantia limitada da HP pode incluir um serviço de garantia apenas para peças. Segundo os termos do serviço de garantia apenas para peças, a HP fornece as peças de reposição sem cobrar nenhuma taxa.

No caso desse serviço, a substituição de peças CSR é obrigatória. Se desejar que a HP substitua essas peças, serão cobradas as despesas de transporte e mão-de-obra do serviço.

カスタマーセルフリペア

修理時間を短縮し、故障部品の交換における高い柔軟性を確保するために、HP製品には多数のCSR部品があります。診断の際に、CSR部品を使用すれば修理ができるとHP（HPまたはHP正規保守代理店）が判断した場合、HPはその部品を直接、お客様に発送し、お客様に交換していただきます。CSR部品には以下の2通りがあります。

- **必須 -** カスタマーセルフリペアが必須の部品。当該部品について、もしもお客様がHPに交換作業を依頼される場合には、その修理サービスに関する交通費および人件費がお客様に請求されます。
- **任意 -** カスタマーセルフリペアが任意である部品。この部品もカスタマーセルフリペア用です。当該部品について、もしもお客様がHPに交換作業を依頼される場合には、お買い上げの製品に適用される保証サービス内容の範囲内においては、別途費用を負担していただくことなく保証サービスを受けることができます。

注： HP製品の一部の部品は、カスタマーセルフリペア用ではありません。製品の保証を継続するためには、HPまたはHP正規保守代理店による交換作業が必須となります。部品カタログには、当該部品がカスタマーセルフリペア除外品である旨が記載されています。

部品供給が可能な場合、地域によっては、CSR部品を翌営業日に届くように発送します。また、地域によっては、追加費用を負担いただくことにより同日または4時間以内に届くように発送することも可能な場合があります。サポートが必要なときは、HPの修理受付窓口に電話していただければ、技術者が電話でアドバイスします。交換用のCSR部品または同梱物には、故障部品をHPに返送する必要があるかどうかが表示されています。故障部品をHPに返送する必要がある場合は、指定期限内（通常は5営業日以内）に故障部品をHPに返送してください。故障部品を返送する場合は、届いた時の梱包箱に関連書類とともに入れてください。故障部品を返送しない場合、HPから部品費用が請求されます。カスタマーセルフリペアの際には、HPは送料および部品返送費を全額負担し、使用する宅配便会社や運送会社を指定します。

部品のみ保証サービス

HP保証サービスには、部品のみ保証サービスが適用される場合があります。このサービスでは、交換部品は無償で提供されます。

部品のみ保証サービスにおいては、CSR部品をお客様により交換作業していただくことが必須となります。当該部品について、もしもお客様がHPに交換作業を依頼される場合には、その修理サービスに関する交通費および人件費はお客様の負担となります。

客户自行维修

HP 产品提供许多客户自行维修 (CSR) 部件，以尽可能缩短维修时间和在更换缺陷部件方面提供更大的灵活性。如果在诊断期间 HP（或 HP 服务提供商或服务合作伙伴）确定可以通过使用 CSR 部件完成维修，HP 将直接把该部件发送给您进行更换。有两类 CSR 部件：

- **强制性的** — 要求客户必须自行维修的部件。如果您请求 HP 更换这些部件，则必须为该服务支付差旅费和人工费用。
- **可选的** — 客户可以选择是否自行维修的部件。这些部件也是为客户自行维修设计的。不过，如果您要求 HP 为您更换这些部件，则根据为您的产品指定的保修服务类型，HP 可能收取或不再收取任何附加费用。

注：某些 HP 部件的设计并未考虑客户自行维修。为了满足客户保修的需要，HP 要求授权服务提供商更换相关部件。这些部件在部件图解目录中标记为“否”。

CSR 部件将在下一个工作日发运（取决于备货情况和允许的地理范围）。在允许的地理范围内，可在当天或四小时内发运，但要收取额外费用。如果需要帮助，您可以致电 HP 技术支持中心，将会有技术人员通过电话为您提供帮助。HP 会在随更换的 CSR 部件发运的材料中指明是否必须将有缺陷的部件返还给 HP。如果要求您将有缺陷的部件返还给 HP，那么您必须在规定期限内（通常是五 (5) 个工作日）将缺陷部件发给 HP。有缺陷的部件必须随所提供的发运材料中的相关文件一起返还。如果未能送还有缺陷的部件，HP 可能会要求您支付更换费用。客户自行维修时，HP 将承担所有相关运输和部件返回费用，并指定快递商/承运商。

有关 HP 客户自行维修计划的详细信息，请与您当地的服务提供商联系。有关北美地区的计划，请访问 HP 网站 (http://www.hp.com/go/selfrepair)。

仅部件保修服务

您的 HP 有限保修服务可能涉及仅部件保修服务。根据仅部件保修服务条款的规定，HP 将免费提供更换的部件。

仅部件保修服务要求进行 CSR 部件更换。如果您请求 HP 更换这些部件，则必须为该服务支付差旅费和人工费用。

客戶自行維修

HP 產品設計了許多「客戶自行維修」(CSR) 的零件以減少維修時間，並且使得更換瑕疵零件時能有更大的彈性。如果在診斷期間 HP（或 HP 服務供應商或維修夥伴）辨認出此項維修工作可以藉由使用 CSR 零件來完成，則 HP 將直接寄送該零件給您作更換。CSR 零件分為兩種類別：

- **強制的** — 客戶自行維修所使用的零件是強制性的。如果您要求 HP 更換這些零件，HP 將會向您收取此服務所需的外出費用與勞動成本。
- **選購的** — 客戶自行維修所使用的零件是選購的。這些零件也設計用於客戶自行維修之用。不過，如果您要求 HP 為您更換，則可能需要也可能不需要負擔額外的費用，端視針對此產品指定的保固服務類型而定。

備註：某些 HP 零件沒有消費者可自行維修的設計。為符合客戶保固，HP 需要授權的服務供應商更換零件。這些零件在圖示的零件目錄中，被標示為「否」。

基於材料取得及環境允許的情況下，CSR 零件將於下一個工作日以快遞寄送。在環境的允許下當天或四小時內送達，則可能需要額外的費用。若您需要協助，可致電「HP 技術支援中心」，會有一位技術人員透過電話來協助您。不論損壞的零件是否必須退回，HP 皆會在與 CSR 替換零件一起運送的材料中註明。若要將損壞的零件退回 HP，您必須在指定的一段時間內（通常為五 (5) 個工作天），將損壞的零件寄回 HP。損壞的零件必須與寄送資料中隨附的相關技術文件一併退還。如果無法退還損壞的零件，HP 可能要向您收取替換費用。針對客戶自行維修情形，HP 將負責所有運費及零件退還費用並指定使用何家快遞/貨運公司。

如需 HP 的「客戶自行維修」方案詳細資訊，請連絡您當地的服務供應商。至於北美方案，請參閱 HP 網站 (http://www.hp.com/go/selfrepair)。

僅限零件的保固服務

您的「HP 有限保固」可能包含僅限零件的保固服務。在僅限零件的保固服務情況下，HP 將免費提供替換零件。

針對僅限零件的保固服務，CSR 零件替換是強制性的。如果您要求 HP 更換這些零件，HP 將會向您收取此服務所需的外出費用與勞動成本。

고객 셀프 수리

HP 제품은 수리 시간을 최소화하고 결함이 있는 부품 교체 시 더욱 융통성을 발휘할 수 있도록 하기 위해 고객 셀프 수리(CSR) 부품을 다량 사용하여 설계되었습니다. 진단 기간 동안 HP(또는 HP 서비스 공급업체 또는 서비스 협력업체)에서 CSR 부품을 사용하여 수리가 가능하다고 판단되면 HP는 해당 부품을 바로 사용자에게 보내어 사용자가 교체할 수 있도록 합니다. CSR 부품에는 두 가지 종류가 있습니다.

- **고객 셀프 수리가 의무 사항인 필수 부품.** 사용자가 HP에 이 부품의 교체를 요청할 경우 이 서비스에 대한 출장비 및 작업비가 청구됩니다.
- **고객 셀프 수리가 선택 사항인 부품.** 이 부품들도 고객 셀프 수리가 가능하도록 설계되었습니다. 하지만 사용자가 HP에 이 부품의 교체를 요청할 경우 사용자가 구입한 제품에 해당하는 보증 서비스 유형에 따라 추가 비용 없이 교체가 가능할 수 있습니다.

참고: 일부 HP 부품은 고객 셀프 수리가 불가능하도록 설계되었습니다. HP는 만족스러운 고객 보증을 위해 공인 서비스 제공업체를 통해 부품을 교체하도록 하고 있습니다. 이러한 부품들은 Illustrated Parts Catalog에 "No"라고 표시되어 있습니다.

CSR 부품은 재고 상태와 지리적 조건이 허용하는 경우 다음 영업일 납품이 가능하도록 배송이 이루어집니다. 지리적 조건이 허용하는 경우 추가 비용이 청구되는 조건으로 당일 또는 4시간 배송이 가능할 수도 있습니다. 도움이 필요하시면 HP 기술 지원 센터로 전화하십시오. 전문 기술자가 전화로 도움을 줄 것입니다. HP는 결함이 발생한 부품을 HP로 반환해야 하는지 여부를 CSR 교체 부품과 함께 배송된 자료에 지정합니다. 결함이 발생한 부품을 HP로 반환해야 하는 경우에는 지정된 기간 내(통상 영업일 기준 5일)에 HP로 반환해야 합니다. 이 때 결함이 발생한 부품은 제공된 포장 재료에 넣어 관련 설명서와 함께 반환해야 합니다. 결함이 발생한 부품을 반환하지 않는 경우 HP가 교체 부품에 대해 비용을 청구할 수 있습니다. 고객 셀프 수리의 경우, HP는 모든 운송 및 부품 반환 비용을 부담하며 이용할 운송업체 및 택배 서비스를 결정합니다.

HP 고객 셀프 수리 프로그램에 대한 자세한 내용은 가까운 서비스 제공업체에 문의하십시오. 북미 지역의 프로그램에 대해서는 HP 웹 사이트(http://www.hp.com/go/selfrepair)를 참조하십시오.

부품 제공 보증 서비스

HP 제한 보증에는 부품 제공 보증 서비스가 포함될 수 있습니다. 이러한 경우 HP는 부품 제공 보증 서비스의 조건에 따라 교체 부품만을 무료로 제공합니다.

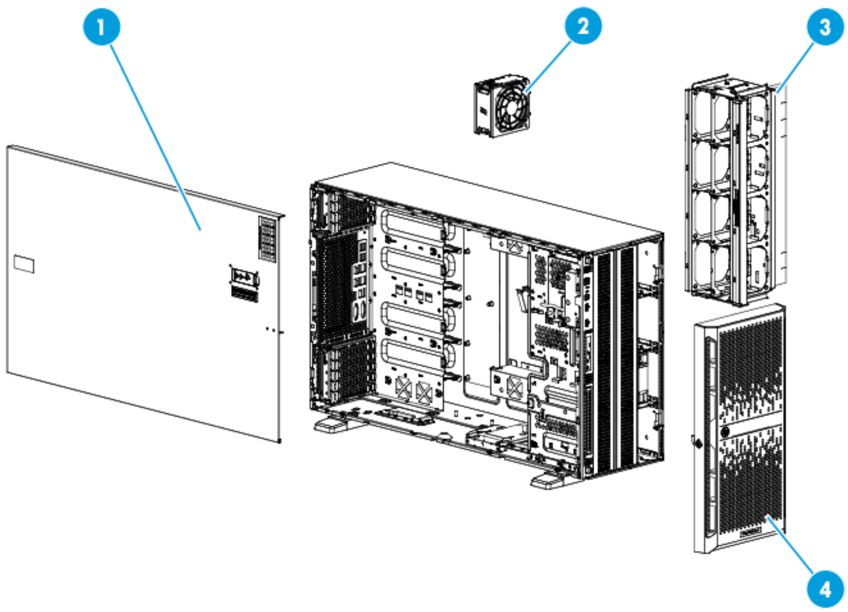
부품 제공 보증 서비스 제공 시 CSR 부품 교체는 의무 사항입니다. 사용자가 HP에 이 부품의 교체를 요청할 경우 이 서비스에 대한 출장비 및 작업비가 청구됩니다.

Illustrated parts catalog

Mechanical components

HP continually improves and changes product parts. For complete and current supported parts information, see one of the following websites:

- HP PartSurfer website (http://partsurfer.hp.com)
- HP PartSurfer mobile site (http://partsurfermobile.hp.com)



Item	Description	Spare part number	Customer self repair (on page 5)
1	Access panel	768972-001	Mandatory[1]
2	Fan module	780976-001	Mandatory[1]
3	Fan cage	780989-001	Mandatory[1]
4	Tower bezel (with key)	769020-001	Mandatory[1]
5	**Rails**	—	—
	a) Right rail*	786182-001	—
	b) Left rail*	786183-001	—

*Not shown

[1]Mandatory—Parts for which customer self repair is mandatory. If you request HP to replace these parts, you will be charged for the travel and labor costs of this service.

[2]Optional—Parts for which customer self repair is optional. These parts are also designed for customer self repair. If, however, you require that HP replace them for you, there may or may not be additional charges, depending on the type of warranty service designated for your product.
[3]No—Some HP parts are not designed for customer self repair. In order to satisfy the customer warranty, HP requires that an authorized service provider replace the part. These parts are identified as "No" in the Illustrated Parts Catalog.

[1]Mandatory: Obligatoire—Pièces pour lesquelles la réparation par le client est obligatoire. Si vous demandez à HP de remplacer ces pièces, les coûts de déplacement et main d'œuvre du service vous seront facturés.
[2]Optional: Facultatif—Pièces pour lesquelles la réparation par le client est facultative. Ces pièces sont également conçues pour permettre au client d'effectuer lui-même la réparation. Toutefois, si vous demandez à HP de remplacer ces pièces, l'intervention peut ou non vous être facturée, selon le type de garantie applicable à votre produit.
[3]No: Non—Certaines pièces HP ne sont pas conçues pour permettre au client d'effectuer lui-même la réparation. Pour que la garantie puisse s'appliquer, HP exige que le remplacement de la pièce soit effectué par un Mainteneur Agréé. Ces pièces sont identifiées par la mention “Non” dans le Catalogue illustré.

[1]Mandatory: Obbligatorie—Parti che devono essere necessariamente riparate dal cliente. Se il cliente ne affida la riparazione ad HP, deve sostenere le spese di spedizione e di manodopera per il servizio.
[2]Optional: Opzionali—Parti la cui riparazione da parte del cliente è facoltativa. Si tratta comunque di componenti progettati per questo scopo. Se tuttavia il cliente ne richiede la sostituzione ad HP, potrebbe dover sostenere spese addizionali a seconda del tipo di garanzia previsto per il prodotto.
[3]No: Non CSR—Alcuni componenti HP non sono progettati per la riparazione da parte del cliente. Per rispettare la garanzia, HP richiede che queste parti siano sostituite da un centro di assistenza autorizzato. Tali parti sono identificate da un “No” nel Catalogo illustrato dei componenti.

[1]Mandatory: Zwingend—Teile, die im Rahmen des Customer Self Repair Programms ersetzt werden müssen. Wenn Sie diese Teile von HP ersetzen lassen, werden Ihnen die Versand- und Arbeitskosten für diesen Service berechnet.
[2]Optional: Optional—Teile, für die das Customer Self Repair-Verfahren optional ist. Diese Teile sind auch für Customer Self Repair ausgelegt. Wenn Sie jedoch den Austausch dieser Teile von HP vornehmen lassen möchten, können bei diesem Service je nach den für Ihr Produkt vorgesehenen Garantiebedingungen zusätzliche Kosten anfallen.
[3]No: Kein—Einige Teile sind nicht für Customer Self Repair ausgelegt. Um den Garantieanspruch des Kunden zu erfüllen, muss das Teil von einem HP Servicepartner ersetzt werden. Im illustrierten Teilekatalog sind diese Teile mit „No“ bzw. „Nein“ gekennzeichnet.

[1]Mandatory: Obligatorio—componentes para los que la reparación por parte del usuario es obligatoria. Si solicita a HP que realice la sustitución de estos componentes, tendrá que hacerse cargo de los gastos de desplazamiento y de mano de obra de dicho servicio.
[2]Optional: Opcional— componentes para los que la reparación por parte del usuario es opcional. Estos componentes también están diseñados para que puedan ser reparados por el usuario. Sin embargo, si precisa que HP realice su sustitución, puede o no conllevar costes adicionales, dependiendo del tipo de servicio de garantía correspondiente al producto.
[3]No: No—Algunos componentes no están diseñados para que puedan ser reparados por el usuario. Para que el usuario haga valer su garantía, HP pone como condición que un proveedor de servicios autorizado realice la sustitución de estos componentes. Dichos componentes se identifican con la palabra “No” en el catálogo ilustrado de componentes.

[1]Mandatory: Verplicht—Onderdelen waarvoor Customer Self Repair verplicht is. Als u HP verzoekt deze onderdelen te vervangen, komen de reiskosten en het arbeidsloon voor uw rekening.
[2]Optional: Optioneel—Onderdelen waarvoor reparatie door de klant optioneel is. Ook deze onderdelen zijn ontworpen voor reparatie door de klant. Als u echter HP verzoekt deze onderdelen voor u te vervangen, kunnen daarvoor extra kosten in rekening worden gebracht, afhankelijk van het type garantieservice voor het product.
[3]No: Nee—Sommige HP onderdelen zijn niet ontwikkeld voor reparatie door de klant. In verband met de garantievoorwaarden moet het onderdeel door een geautoriseerde Service Partner worden vervangen. Deze onderdelen worden in de geïllustreerde onderdelencatalogus aangemerkt met "Nee".

[1]Mandatory: Obrigatória—Peças cujo reparo feito pelo cliente é obrigatório. Se desejar que a HP substitua essas peças, serão cobradas as despesas de transporte e mão-de-obra do serviço.

[2]Optional: Opcional—Peças cujo reparo feito pelo cliente é opcional. Essas peças também são projetadas para o reparo feito pelo cliente. No entanto, se desejar que a HP as substitua, pode haver ou não a cobrança de taxa adicional, dependendo do tipo de serviço de garantia destinado ao produto.
[3]No: Nenhuma—Algumas peças da HP não são projetadas para o reparo feito pelo cliente. A fim de cumprir a garantia do cliente, a HP exige que um técnico autorizado substitua a peça. Essas peças estão identificadas com a marca “No” (Não), no catálogo de peças ilustrado.

[1]Mandatory：必須 - 顧客自己修理が必須の部品。当該部品について、もしもお客様がHPに交換作業を依頼される場合には、その修理サービスに関する交通費および人件費がお客様に請求されます。

[2]Optional：任意 - 顧客自己修理が任意である部品。この部品も顧客自己修理用です。当該部品について、もしもお客様がHPに交換作業を依頼される場合には、お買い上げの製品に適用される保証サービス内容の範囲内においては、費用を負担していただくことなく保証サービスを受けることができます。

[3]No：除外 - HP製品の一部の部品は、顧客自己修理用ではありません。製品の保証を継続するためには、HPまたはHP正規保守代理店による交換作業が必須となります。部品カタログには、当該部品が顧客自己修理除外品である旨が記載されています。

[1]Mandatory: 强制性的 — 要求客户必须自行维修的部件。如果您请求 HP 更换这些部件，则必须为该服务支付差旅费和人工费用。

[2]Optional: 可选的 — 客户可以选择是否自行维修的部件。这些部件也是为客户自行维修设计的。不过，如果您要求 HP 为您更换这些部件，则根据为您的产品指定的保修服务类型，HP 可能收取或不再收取任何附加费用。

[3]No: 否 — 某些 HP 部件的设计并未考虑客户自行维修。为了满足客户保修的需要，HP 要求授权服务提供商更换相关部件。这些部件在部件图解目录中标记为“否”。

[1]Mandatory: 強制的 — 客戶自行維修所使用的零件是強制性的。如果您要求 HP 更換這些零件，HP 將會向您收取此服務所需的外出費用與勞動成本。

[2]Optional: 選購的 — 客戶自行維修所使用的零件是選購的。這些零件也設計用於客戶自行維修之用。不過，如果您要求 HP 為您更換，則可能需要也可能不需要負擔額外的費用，端視針對此產品指定的保固服務類型而定。

[3]No: 否 — 某些 HP 零件沒有消費者可自行維修的設計。為符合客戶保固，HP 需要授權的服務供應商更換零件。這些零件在圖示的零件目錄中，被標示為「否」。

[1] Mandatory: 필수 — 고객 셀프 수리가 의무 사항인 필수 부품. 사용자가 HP에 이 부품의 교체를 요청할 경우 이 서비스에 대한 출장비 및 작업비가 청구됩니다.

[2] Optional: 옵션 — 고객 셀프 수리가 선택 사항인 부품. 이 부품들도 고객 셀프 수리가 가능하도록 설계되었습니다. 하지만 사용자가 HP에 이 부품의 교체를 요청할 경우 사용자가 구입한 제품에 해당하는 보증 서비스 유형에 따라 추가 비용 없이 교체가 가능할 수 있습니다.

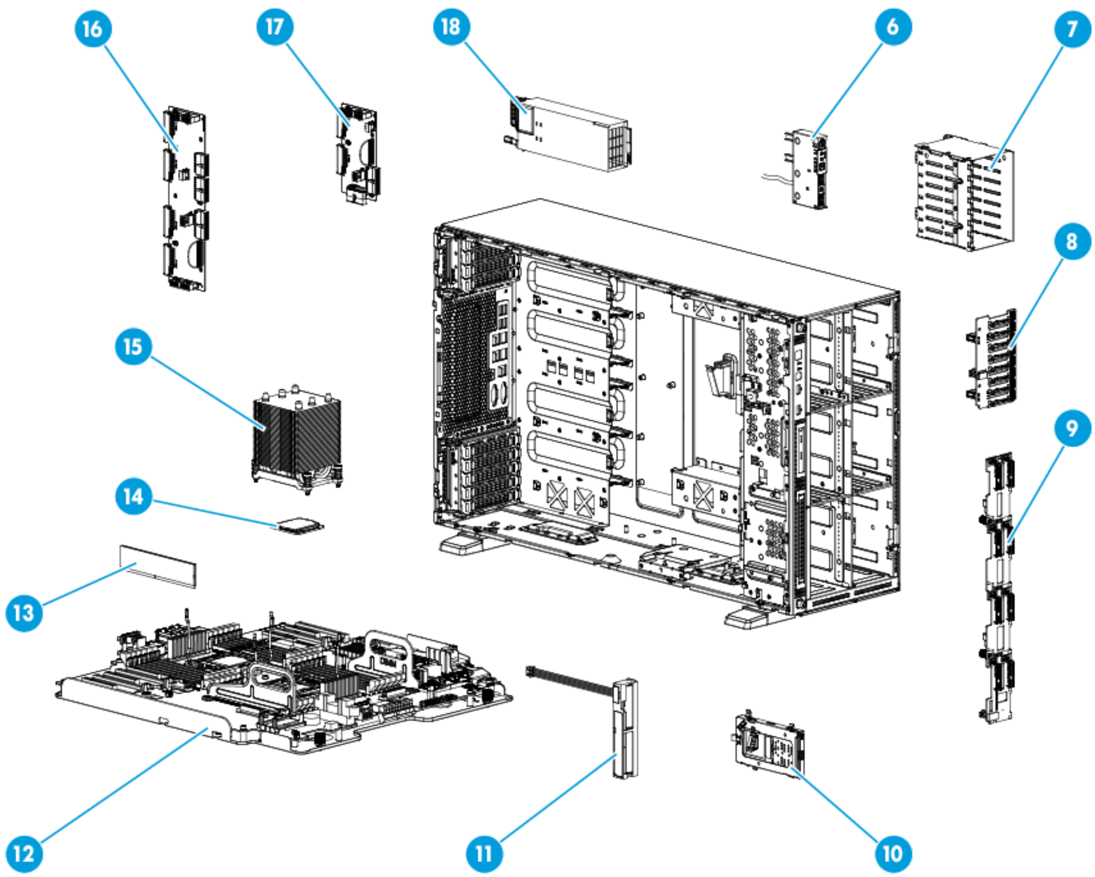
[3] No: No — 고객 셀프 수리가 불가능하도록 설계된 HP 부품. 이 부품들은 고객 셀프 수리가 불가능하도록 설계되었습니다. HP는 고객 보증을 만족시키기 위해 공인 서비스 제공업체를 통해 부품을 교체하도록 하고 있습니다.

System components

HP continually improves and changes product parts. For complete and current supported parts information, see one of the following websites:

- HP PartSurfer website (http://partsurfer.hp.com)

- HP PartSurfer mobile site (http://partsurfermobile.hp.com)



Item	Description	Spare part number	Customer self repair (on page 5)
6	Front I/O module assembly	780990-001	Optional[2]
7	8-SFF hot-plug drive cage	780971-001	Optional[2]
8	8-SFF drive backplane	780973-001	Optional[2]
9	8-LFF drive backplane	780974-001	Optional[2]
10	Systems Insight Display	780970-001	Optional[2]
11	HP Smart Storage Battery	727260-001	Mandatory[1]
12	System board (with tray)	780967-001	Optional[2]
13	**DIMMs**		
	a) 8 GB, single rank, x4, PC4-2133P-R	774170-001	Mandatory[1]
	b) 16 GB, dual rank, x4, PC4-2133P-R*	774172-001	Mandatory[1]
	c) 32 GB, quad rank, x4, PC4-2133P-L*	774174-001	Mandatory[1]
14	**Processors****	—	—
	a) 2.8 GHz Intel Xeon E5-2697v3 processor	780979-001	Optional[2]
	b) 2.3 GHz Intel Xeon E5-2695v3 processor*	780980-001	Optional[2]

Item	Description	Spare part number	Customer self repair (on page 5)
	c) 2.0 GHz Intel Xeon E5-2683v3 processor*	780981-001	Optional[2]
	d) 2.8 GHz Intel Xeon E5-2690v3 processor*	780982-001	Optional[2]
	e) 2.6 GHz Intel Xeon E5-2680v3 processor*	780983-001	Optional[2]
	f) 2.4 GHz Intel Xeon E5-2670v3 processor*	780984-001	Optional[2]
	g) 2.6 GHz Intel Xeon E5-2660v3 processor*	780985-001	Optional[2]
	h) 2.4 GHz Intel Xeon E5-2650v3 processor*	780986-001	Optional[2]
	i) 2.2 GHz Intel Xeon E5-2640v3 processor*	780988-001	Optional[2]
	j) 2.6 GHz Intel Xeon E5-2630v3 processor*	762446-001	Optional[2]
	k) 2.3 GHz Intel Xeon E5-2620v3 processor*	762445-001	Optional[2]
	l) 2.0 GHz Intel Xeon E5-2609v3 processor*	762443-001	Optional[2]
	m) 1.8 GHz Intel Xeon E5-2603v3 processor*	762441-001	Optional[2]
	n) 3.3+GHz Intel Xeon E5-2667v3 processor*	780996-001	Optional[2]
	o) 3.3+GHz Intel Xeon E5-2643v3 processor*	780997-001	Optional[2]
	p) 3.5+GHz Intel Xeon E5-2637v3 processor*	780998-001	Optional[2]
	q) 1.8 GHz Intel Xeon E5-2650Lv3 processor*	780999-001	Optional[2]
	r) 2.3 GHz Intel Xeon E5-2698v3 processor*	781000-001	Optional[2]
	s) 1.5 GHz Intel Xeon E5-2630Lv3 processor*	781001-001	Optional[2]
15	Heatsink	780975-001	Optional[2]
16	x4-slot power supply backplane	780969-001	Optional[2]
17	x2-slot power supply backplane	780968-001	Optional[2]
18	**Power supplies**		
	a) HP 500W Flex Slot Platinum Hot Plug Power Supply	754377-001	Mandatory[1]
	b) HP 800W Flex Slot Platinum Hot Plug Power Supply*	754381-001	Mandatory[1]
19	**Cables**		
	a) System board power cable 2x12*	780992-001	Optional[2]
	b) SFF media power cable*	780993-001	Optional[2]
	c) Graphic card power cable*	780992-001	Optional[2]
	d) Discovery service cable*	780992-001	Optional[2]
	e) System board power cable 2x4*	780992-001	Optional[2]

Item	Description	Spare part number	Customer self repair (on page 5)
	f) LFF backplane power cable*	780993-001	Optional[2]
	g) SFF backplane power cable*	780993-001	Optional[2]
	h) 4 SFF mini-SAS cable*	780991-001	Optional[2]
	i) 8 SFF 12G mini-SAS cable*	780991-001	Optional[2]
	j) 4 LFF 12G mini-SAS cable*	780991-001	Optional[2]
	k) 4 LFF 6G mini-SAS cable*	780991-001	Optional[2]
	l) SFF optional backplane power cable*	780993-001	Optional[2]

*Not shown

**All processors in this HP ProLiant server must have the same cache size, speed, number of cores, and rated maximum power consumption.

[1]Mandatory—Parts for which customer self repair is mandatory. If you request HP to replace these parts, you will be charged for the travel and labor costs of this service.

[2]Optional—Parts for which customer self repair is optional. These parts are also designed for customer self repair. If, however, you require that HP replace them for you, there may or may not be additional charges, depending on the type of warranty service designated for your product.

[3]No—Some HP parts are not designed for customer self repair. In order to satisfy the customer warranty, HP requires that an authorized service provider replace the part. These parts are identified as "No" in the Illustrated Parts Catalog.

[1]Mandatory: Obligatoire—Pièces pour lesquelles la réparation par le client est obligatoire. Si vous demandez à HP de remplacer ces pièces, les coûts de déplacement et main d'œuvre du service vous seront facturés.

[2]Optional: Facultatif—Pièces pour lesquelles la réparation par le client est facultative. Ces pièces sont également conçues pour permettre au client d'effectuer lui-même la réparation. Toutefois, si vous demandez à HP de remplacer ces pièces, l'intervention peut ou non vous être facturée, selon le type de garantie applicable à votre produit.

[3]No: Non—Certaines pièces HP ne sont pas conçues pour permettre au client d'effectuer lui-même la réparation. Pour que la garantie puisse s'appliquer, HP exige que le remplacement de la pièce soit effectué par un Mainteneur Agréé. Ces pièces sont identifiées par la mention “Non” dans le Catalogue illustré.

[1]Mandatory: Obbligatorie—Parti che devono essere necessariamente riparate dal cliente. Se il cliente ne affida la riparazione ad HP, deve sostenere le spese di spedizione e di manodopera per il servizio.

[2]Optional: Opzionali—Parti la cui riparazione da parte del cliente è facoltativa. Si tratta comunque di componenti progettati per questo scopo. Se tuttavia il cliente ne richiede la sostituzione ad HP, potrebbe dover sostenere spese addizionali a seconda del tipo di garanzia previsto per il prodotto.

[3]No: Non CSR—Alcuni componenti HP non sono progettati per la riparazione da parte del cliente. Per rispettare la garanzia, HP richiede che queste parti siano sostituite da un centro di assistenza autorizzato. Tali parti sono identificate da un “No” nel Catalogo illustrato dei componenti.

[1]Mandatory: Zwingend—Teile, die im Rahmen des Customer Self Repair Programms ersetzt werden müssen. Wenn Sie diese Teile von HP ersetzen lassen, werden Ihnen die Versand- und Arbeitskosten für diesen Service berechnet.

[2]Optional: Optional—Teile, für die das Customer Self Repair-Verfahren optional ist. Diese Teile sind auch für Customer Self Repair ausgelegt. Wenn Sie jedoch den Austausch dieser Teile von HP vornehmen lassen möchten, können bei diesem Service je nach den für Ihr Produkt vorgesehenen Garantiebedingungen zusätzliche Kosten anfallen.

[3]No: Kein—Einige Teile sind nicht für Customer Self Repair ausgelegt. Um den Garantieanspruch des Kunden zu erfüllen, muss das Teil von einem HP Servicepartner ersetzt werden. Im illustrierten Teilekatalog sind diese Teile mit „No“ bzw. „Nein“ gekennzeichnet.

[1]Mandatory: Obligatorio—componentes para los que la reparación por parte del usuario es obligatoria. Si solicita a HP que realice la sustitución de estos componentes, tendrá que hacerse cargo de los gastos de desplazamiento y de mano de obra de dicho servicio.

[2]Optional: Opcional— componentes para los que la reparación por parte del usuario es opcional. Estos componentes también están diseñados para que puedan ser reparados por el usuario. Sin embargo, si precisa que HP realice su

sustitución, puede o no conllevar costes adicionales, dependiendo del tipo de servicio de garantía correspondiente al producto.
[3]No: No—Algunos componentes no están diseñados para que puedan ser reparados por el usuario. Para que el usuario haga valer su garantía, HP pone como condición que un proveedor de servicios autorizado realice la sustitución de estos componentes. Dichos componentes se identifican con la palabra “No” en el catálogo ilustrado de componentes.

[1]Mandatory: Verplicht—Onderdelen waarvoor Customer Self Repair verplicht is. Als u HP verzoekt deze onderdelen te vervangen, komen de reiskosten en het arbeidsloon voor uw rekening.
[2]Optional: Optioneel—Onderdelen waarvoor reparatie door de klant optioneel is. Ook deze onderdelen zijn ontworpen voor reparatie door de klant. Als u echter HP verzoekt deze onderdelen voor u te vervangen, kunnen daarvoor extra kosten in rekening worden gebracht, afhankelijk van het type garantieservice voor het product.
[3]No: Nee—Sommige HP onderdelen zijn niet ontwikkeld voor reparatie door de klant. In verband met de garantievoorwaarden moet het onderdeel door een geautoriseerde Service Partner worden vervangen. Deze onderdelen worden in de geïllustreerde onderdelencatalogus aangemerkt met "Nee".

[1]Mandatory: Obrigatória—Peças cujo reparo feito pelo cliente é obrigatório. Se desejar que a HP substitua essas peças, serão cobradas as despesas de transporte e mão-de-obra do serviço.
[2]Optional: Opcional—Peças cujo reparo feito pelo cliente é opcional. Essas peças também são projetadas para o reparo feito pelo cliente. No entanto, se desejar que a HP as substitua, pode haver ou não a cobrança de taxa adicional, dependendo do tipo de serviço de garantia destinado ao produto.
[3]No: Nenhuma—Algumas peças da HP não são projetadas para o reparo feito pelo cliente. A fim de cumprir a garantia do cliente, a HP exige que um técnico autorizado substitua a peça. Essas peças estão identificadas com a marca “No” (Não), no catálogo de peças ilustrado.

[1]Mandatory：必須 - 顧客自己修理が必須の部品。当該部品について、もしもお客様がHPに交換作業を依頼される場合には、その修理サービスに関する交通費および人件費がお客様に請求されます。

[2]Optional：任意 - 顧客自己修理が任意である部品。この部品も顧客自己修理用です。当該部品について、もしもお客様がHPに交換作業を依頼される場合には、お買い上げの製品に適用される保証サービス内容の範囲内においては、費用を負担していただくことなく保証サービスを受けることができます。

[3]No：除外 - HP製品の一部の部品は、顧客自己修理用ではありません。製品の保証を継続するためには、HPまたはHP正規保守代理店による交換作業が必須となります。部品カタログには、当該部品が顧客自己修理除外品である旨が記載されています。

[1]Mandatory: 强制性的 — 要求客户必须自行维修的部件。如果您请求 HP 更换这些部件，则必须为该服务支付差旅费和人工费用。

[2]Optional: 可选的 — 客户可以选择是否自行维修的部件。这些部件也是为客户自行维修设计的。不过，如果您要求 HP 为您更换这些部件，则根据为您的产品指定的保修服务类型，HP 可能收取或不再收取任何附加费用。

[3]No: 否 — 某些 HP 部件的设计并未考虑客户自行维修。为了满足客户保修的需要，HP 要求授权服务提供商更换相关部件。这些部件在部件图解目录中标记为“否”。

[1]Mandatory: 強制的 — 客戶自行維修所使用的零件是強制性的。如果您要求 HP 更換這些零件，HP 將會向您收取此服務所需的外出費用與勞動成本。

[2]Optional: 選購的 — 客戶自行維修所使用的零件是選購的。這些零件也設計用於客戶自行維修之用。不過，如果您要求 HP 為您更換，則可能需要也可能不需要負擔額外的費用，端視針對此產品指定的保固服務類型而定。

[3]No: 否 — 某些 HP 零件沒有消費者可自行維修的設計。為符合客戶保固，HP 需要授權的服務供應商更換零件。這些零件在圖示的零件目錄中，被標示為「否」。

[1] Mandatory: 필수 — 고객 셀프 수리가 의무 사항인 필수 부품. 사용자가 HP에 이 부품의 교체를 요청할 경우 이 서비스에 대한 출장비 및 작업비가 청구됩니다.

[2] Optional: 옵션 — 고객 셀프 수리가 선택 사항인 부품. 이 부품들도 고객 셀프 수리가 가능하도록 설계되었습니다. 하지만 사용자가 HP에 이 부품의 교체를 요청할 경우 사용자가 구입한 제품에 해당하는 보증 서비스 유형에 따라 추가 비용 없이 교체가 가능할 수 있습니다.

[3] No: No — 고객 셀프 수리가 불가능하도록 설계된 HP 부품. 이 부품들은 고객 셀프 수리가 불가능하도록 설계되었습니다. HP는 고객 보증을 만족시키기 위해 공인 서비스 제공업체를 통해 부품을 교체하도록 하고 있습니다.

Removal and replacement procedures

Required tools

You need the following items for some procedures:

- Torx T-15, Philips #2 and flathead screwdrivers
- HP Insight Diagnostics software ("HP Insight Diagnostics" on page 67)

Safety considerations

Before performing service procedures, review all the safety information.

Preventing electrostatic discharge

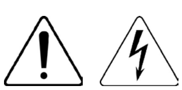
To prevent damaging the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

To prevent electrostatic damage:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.

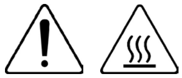
Symbols on equipment

The following symbols may be placed on equipment to indicate the presence of potentially hazardous conditions.

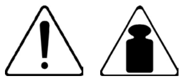
	This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel. **WARNING:** To reduce the risk of injury from electric shock hazards, do not open this enclosure. Refer all maintenance, upgrades, and servicing to qualified personnel.
	This symbol indicates the presence of electric shock hazards. The area contains no user or field serviceable parts. Do not open for any reason. **WARNING:** To reduce the risk of injury from electric shock hazards, do not open this enclosure.



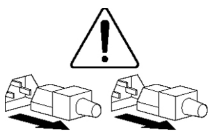
This symbol on an RJ-45 receptacle indicates a network interface connection.
WARNING: To reduce the risk of electric shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.



This symbol indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists.
WARNING: To reduce the risk of injury from a hot component, allow the surface to cool before touching.



This symbol indicates that the component exceeds the recommended weight for one individual to handle safely.
WARNING: To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manual material handling.



These symbols, on power supplies or systems, indicate that the equipment is supplied by multiple sources of power.
WARNING: To reduce the risk of injury from electric shock, remove all power cords to completely disconnect power from the system.

Rack warnings

⚠ **WARNING:** To reduce the risk of personal injury or damage to the equipment, be sure that:

- The leveling jacks are extended to the floor.
- The full weight of the rack rests on the leveling jacks.
- The stabilizing feet are attached to the rack if it is a single-rack installation.
- The racks are coupled together in multiple-rack installations.
- Only one component is extended at a time. A rack may become unstable if more than one component is extended for any reason.

⚠ **WARNING:** To reduce the risk of personal injury or equipment damage when unloading a rack:

- At least two people are needed to safely unload the rack from the pallet. An empty 42U rack can weigh as much as 115 kg (253 lb), can stand more than 2.1 m (7 ft) tall, and might become unstable when being moved on its casters.
- Never stand in front of the rack when it is rolling down the ramp from the pallet. Always handle the rack from both sides.

⚠ **WARNING:** To reduce the risk of personal injury or damage to the equipment, adequately stabilize the rack before extending a component outside the rack. Extend only one component at a time. A rack may become unstable if more than one component is extended.

⚠ **WARNING:** When installing a server in a telco rack, be sure that the rack frame is adequately secured at the top and bottom to the building structure.

Server warnings and cautions

Before installing a server, be sure that you understand the following warnings and cautions.

WARNING: To reduce the risk of electric shock or damage to the equipment:

- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
- Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
- Unplug the power cord from the power supply to disconnect power to the equipment.
- Do not route the power cord where it can be walked on or pinched by items placed against it. Pay particular attention to the plug, electrical outlet, and the point where the cord extends from the server.

WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

CAUTION: Do not operate the server for long periods with the access panel open or removed. Operating the server in this manner results in improper airflow and improper cooling that can lead to thermal damage.

Preparation procedures

To access some components and perform certain service procedures, perform one or more of the following procedures:

- Power down the server (on page 25).

  If you must remove a server from a rack or a non-hot-plug component from a server, power down the server.

- Extend the server from the rack (on page 25).

  If you are performing service procedures in an HP, Compaq branded, telco, or third-party rack cabinet, you can use the locking feature of the rack rails to support the server and gain access to internal components.

  For more information about telco rack solutions, see the RackSolutions.com website (http://www.racksolutions.com/hp).

- Remove the bezel:
  - Remove the tower bezel (on page 25).
  - Remove the security bezel (on page 26).
- Remove the server from the rack (on page 27).

  If the rack environment, cabling configuration, or the server location in the rack creates awkward conditions, remove the server from the rack.

- Remove the air baffle (on page 27).
- Remove the fan cage (on page 28).
- Using the Systems Insight Display (on page 29).

Power down the server

Before powering down the server for any upgrade or maintenance procedures, perform a backup of critical server data and programs.

> **IMPORTANT:** When the server is in standby mode, auxiliary power is still being provided to the system.

To power down the server, use one of the following methods:

- Press and release the Power On/Standby button.

  This method initiates a controlled shutdown of applications and the OS before the server enters standby mode.

- Press and hold the Power On/Standby button for more than 4 seconds to force the server to enter standby mode.

  This method forces the server to enter standby mode without properly exiting applications and the OS. If an application stops responding, you can use this method to force a shutdown.

- Use a virtual power button selection through iLO.

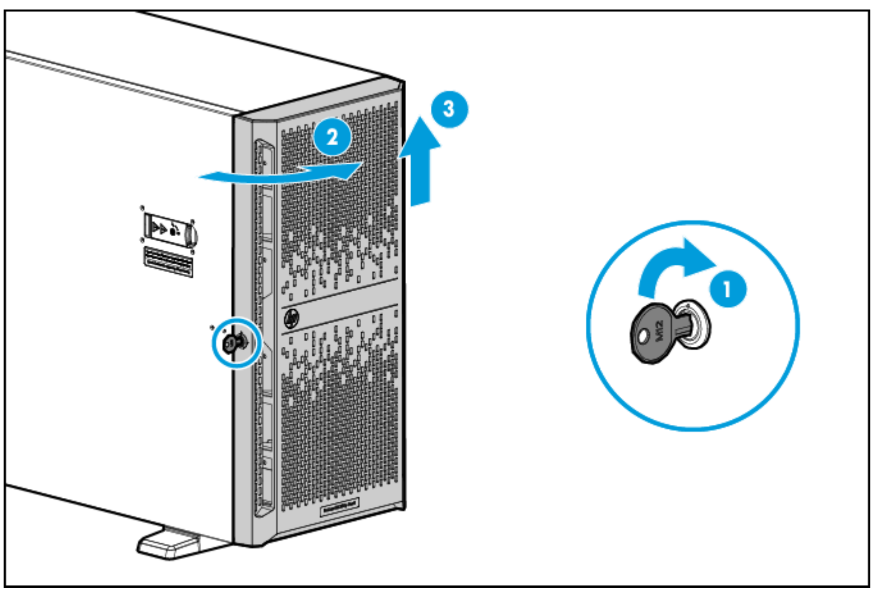
  This method initiates a controlled remote shutdown of applications and the OS before the server enters standby mode.

Before proceeding, verify the server is in standby mode by observing that the system power LED is amber.

Remove the tower bezel

This server has a removable bezel that must be unlocked and opened before accessing the drives. The bezel must be kept closed during normal server operations.

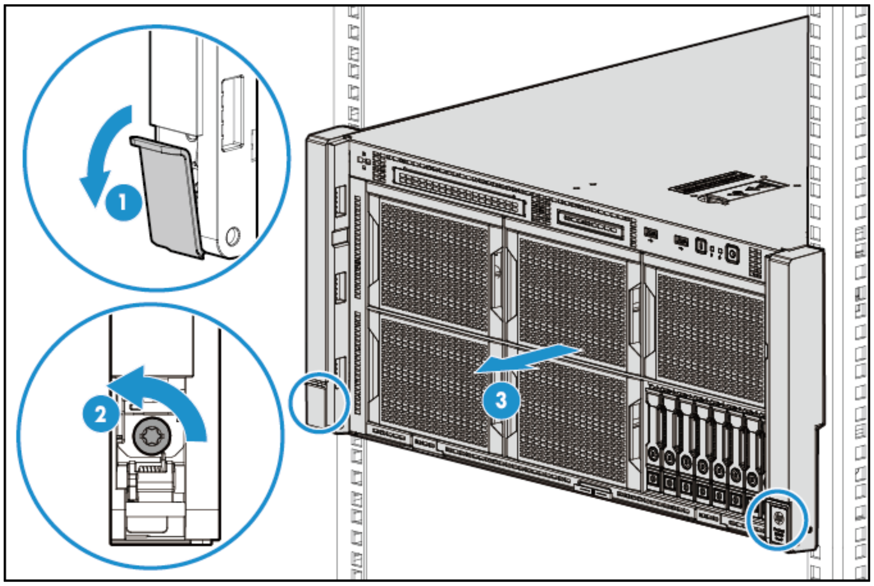
1. Using the key provided with the server, unlock the bezel with a clockwise turn.



Extend the server from the rack

⚠ **WARNING:** To reduce the risk of personal injury or equipment damage, be sure that the rack is adequately stabilized before extending a component from the rack.

1. Loosen the screws from the latch ears and release the latches on each side of the server.
2. Extend the server from the rack.

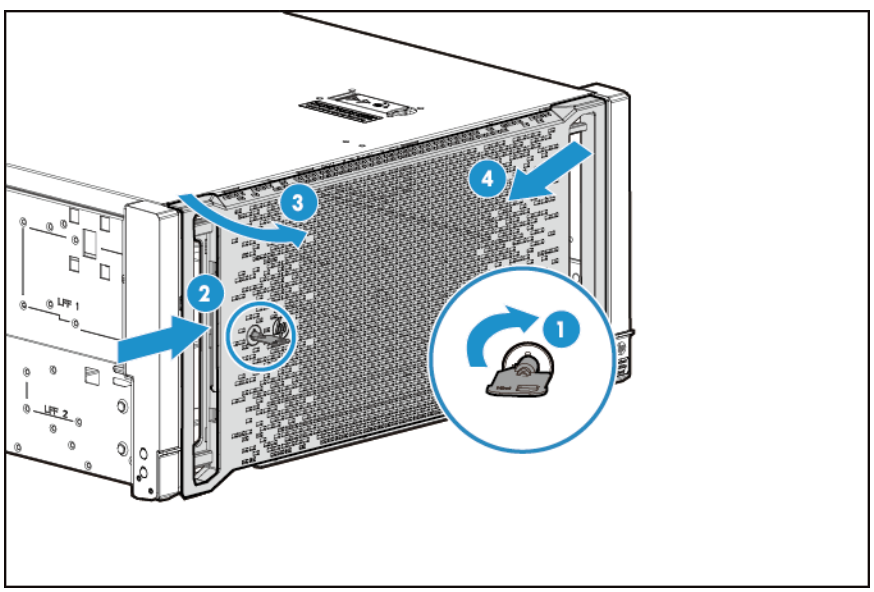


3. After completing the maintenance procedure, slide the server back into the rack, and then press the server firmly into the rack to secure it in place.

⚠ **WARNING:** To reduce the risk of personal injury, be careful when pressing the server rail-release latches and sliding the server into the rack. The sliding rails could pinch your fingers.

Remove the security bezel

Unlock the security bezel, press the latch on the security bezel, and then remove the security bezel.



Remove the server from the rack

⚠ **WARNING:** This server is very heavy. To reduce the risk of personal injury or damage to the equipment:

- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Get help to lift and stabilize the product during installation or removal, especially when the product is not fastened to the rails. HP recommends that a minimum of two people are required for all rack server installations. A third person may be required to help align the server if the server is installed higher than chest level.
- Use caution when installing the server in or removing the server from the rack; it is unstable when not fastened to the rails.

IMPORTANT: The requirement of extending or removing the server from the rack when performing installation and maintenance procedures depends on the rail system used:

- If using a ball-bearing rail system, you can perform most installations and maintenance by simply extending the server from the rack.
- If using a friction rail system, to perform installations or maintenance that requires access panel removal, remove the server from the rack.

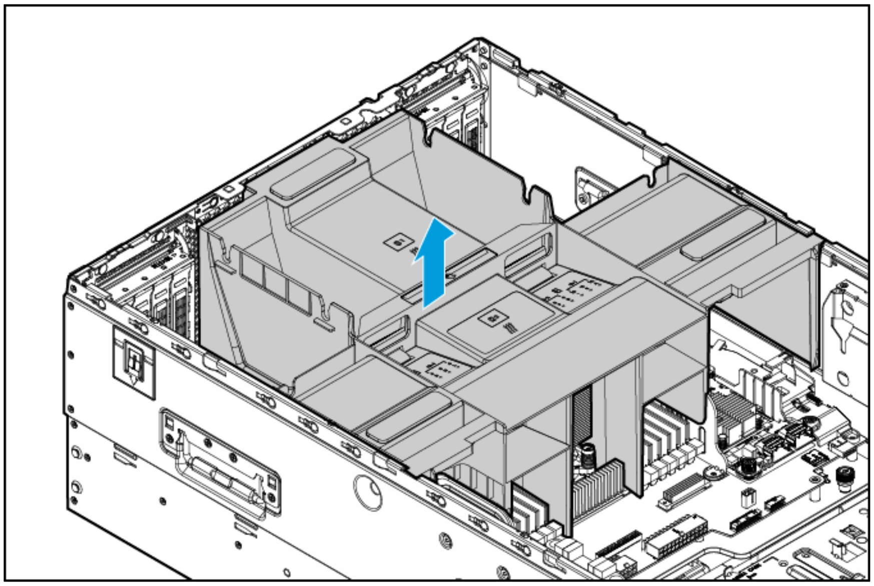
To remove the server from an HP, Compaq-branded, Telco, or third-party rack:

1. Power down the server (on page 25).
2. Disconnect all peripheral cables and power cords from the server rear panel.
3. Extend the server from the rack (on page 25).
4. Remove the server from the rack. For more information, see the documentation that ships with the rack mounting option.
5. Place the server on a sturdy, level surface.

Remove the air baffle

1. Power down the server (on page 25).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. If the server is in a tower configuration, do the following:
   a. Unlock and remove the tower bezel (on page 25).
   b. Place the server on its side.
4. If the server is in a rack configuration, extend the server from the rack (on page 25).
5. Remove the access panel ("Access panel" on page 30).

6. Remove the air baffle.



Remove the fan cage

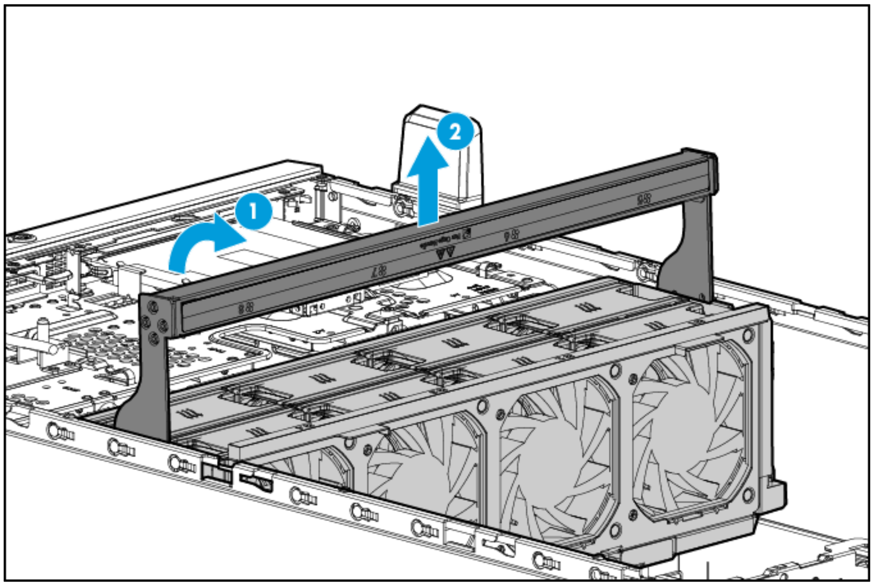
IMPORTANT: When installing or replacing server components, one or more fans might need to be removed. To prevent an orderly or immediate server shutdown, HP highly recommends powering down the server during these procedures. To determine if powering down is required, see the specific procedure.

IMPORTANT: For optimum cooling, install fans in all primary fan locations. For more information, refer to the fan locations table ("Hot-plug fans" on page 85).

To remove the component:

1. Power down the server (on page 25).
2. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
3. Remove the access panel ("Access panel" on page 30).

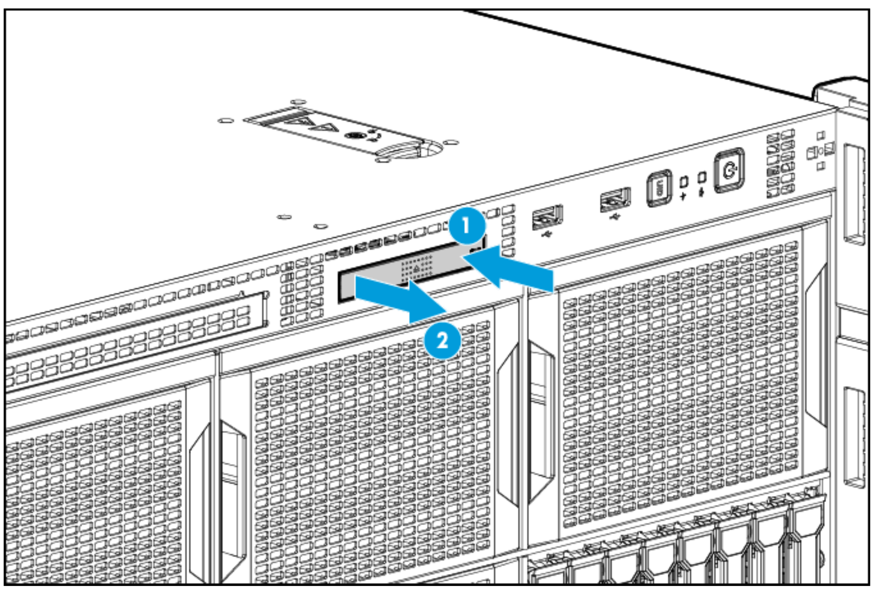
4. Remove the fan cage (on page 28).



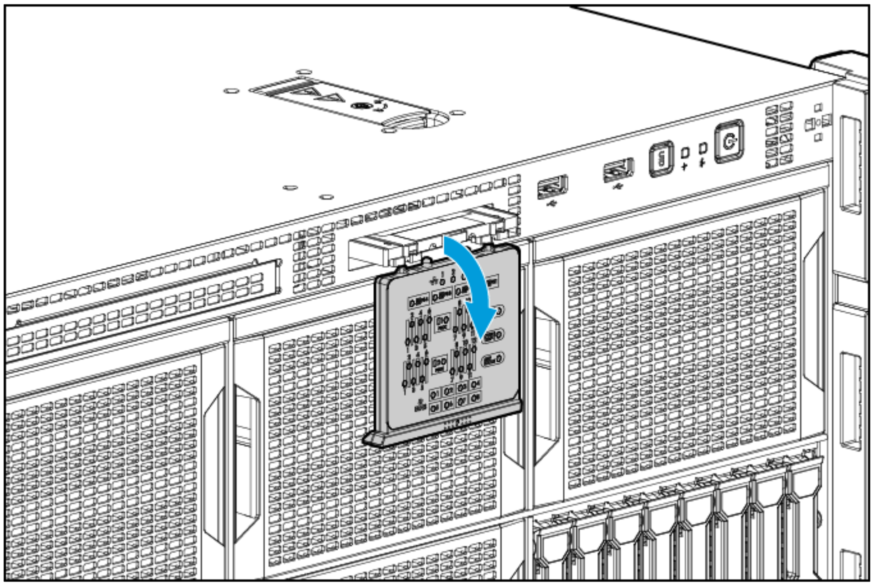
Using the Systems Insight Display

The HP Systems Insight Display (SID) is only available as an option for rack configurations.

1. Remove the security bezel (on page 26), if installed.
2. Press and release the SID panel.



3. After the display fully ejects, rotate the display to view the LEDs.



Access panel

⚠ **WARNING:** To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

△ **CAUTION:** Do not operate the server for long periods with the access panel open or removed. Operating the server in this manner results in improper airflow and improper cooling that can lead to thermal damage.

1. Do one of the following:
   - For tower models, open and remove the tower bezel (on page 25).
   - For rack models, if installed, remove the security bezel (on page 26).
2. Power down the server (on page 25).
3. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
4. Do one of the following:
   - For tower models, place the server on a flat, level surface with the access panel facing up.
   - For rack models, extend the server from the rack (on page 25).
5. Open the locking latch, slide the access panel to the rear of the chassis, and then remove the access panel.

To replace the component, reverse the removal procedure.

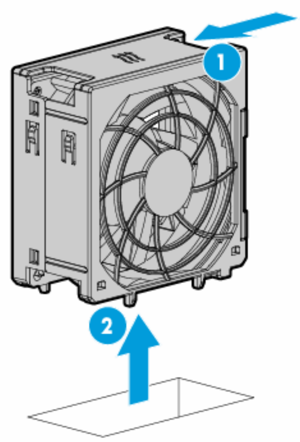
Fan module

For more information on fan numbering and fan population, see "Hot-plug fans (on page 85)."

1. Do one of the following:

- For tower models, open and remove the tower bezel (on page 25).
- For rack models, if installed, remove the security bezel (on page 26).

2. Power down the server (on page 25).
3. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
4. Do one of the following:
   - For tower models, place the server on a flat, level surface with the access panel facing up.
   - For rack models, extend the server from the rack (on page 25).
5. Remove the access panel ("Access panel" on page 30).
6. Remove the fan module.



To replace the component, reverse the removal procedure.

Fan cage

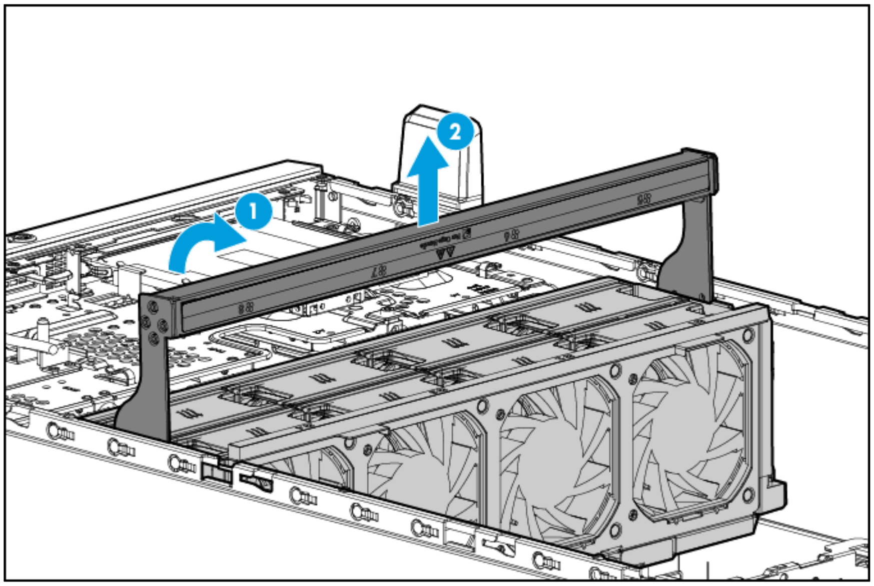
CAUTION: Do not operate the server for long periods with the access panel open or removed. Operating the server in this manner results in improper airflow and improper cooling that can lead to thermal damage.

IMPORTANT: For optimum cooling, install fans in all primary fan locations. For more information, refer to the fan locations table ("Hot-plug fans" on page 85).

1. Do one of the following:
   - For tower models, open and remove the tower bezel (on page 25).
   - For rack models, if installed, remove the security bezel (on page 26).
2. Power down the server (on page 25).
3. Remove all power:
   a. Disconnect each power cord from the power source.

b. Disconnect each power cord from the server.

4. Do one of the following:
   - For tower models, place the server on a flat, level surface with the access panel facing up.
   - For rack models, extend the server from the rack (on page 25).
5. Remove the access panel ("Access panel" on page 30).
6. Remove the air baffle (on page 27).
7. Remove the fan cage.



To replace the component, reverse the removal procedure.

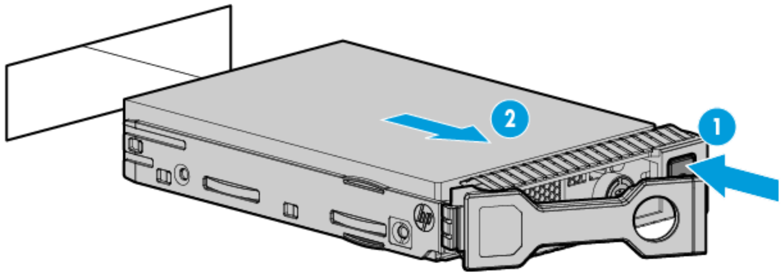
Hot-plug drive

> **CAUTION:** To prevent improper cooling and thermal damage, do not operate the server unless all bays are populated with either a component or a blank.

To remove the component:

1. Back up all server data on the drive.
2. Do one of the following:
   - For tower models, open and remove the tower bezel (on page 25).
   - For rack models, if installed, remove the security bezel (on page 26).
3. Determine the status of the drive from the Hot-plug drive LED definitions (on page 84).

4. Remove the drive.

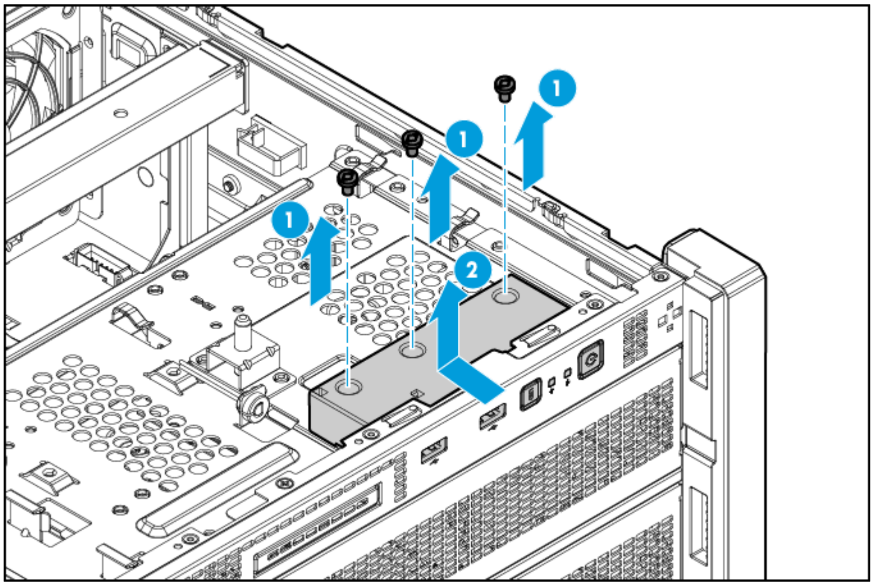


To replace the component, reverse the removal procedure.

Front I/O assembly

1. Do one of the following:
   - For tower models, open and remove the tower bezel (on page 25).
   - For rack models, if installed, remove the security bezel (on page 26).
2. Power down the server (on page 25).
3. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
4. Do one of the following:
   - For tower models, place the server on a flat, level surface with the access panel facing up.
   - For rack models, extend the server from the rack (on page 25).
5. Remove the access panel ("Access panel" on page 30).
6. Remove the air baffle (on page 27).
7. Remove the fan cage (on page 28).
8. Remove the front I/O cable from the system board. For more information, see "System board components (on page 79)."

9. Remove the front I/O module assembly.



To replace the component, reverse the removal procedure.

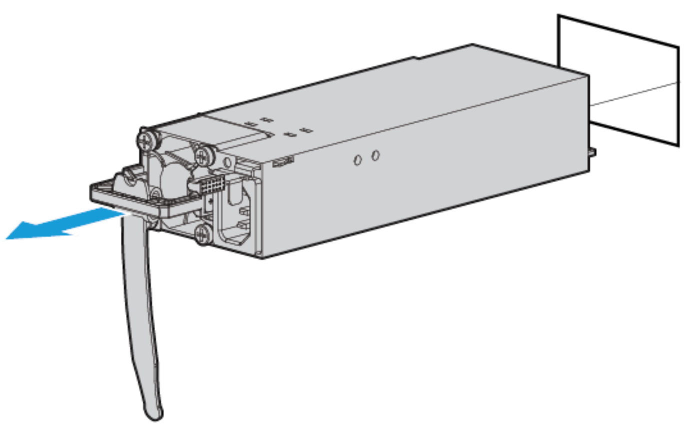
Hot-plug power supply

⚠ **CAUTION:** To prevent improper cooling and thermal damage, do not operate the server unless all bays are populated with either a component or a blank.

Redundant hot-plug power supply

1. Remove the cord connected to the failed power supply.
2. Remove the failed power supply.

⚠ **WARNING:** To reduce the risk of personal injury from hot surfaces, allow the power supply or power supply blank to cool before touching it.

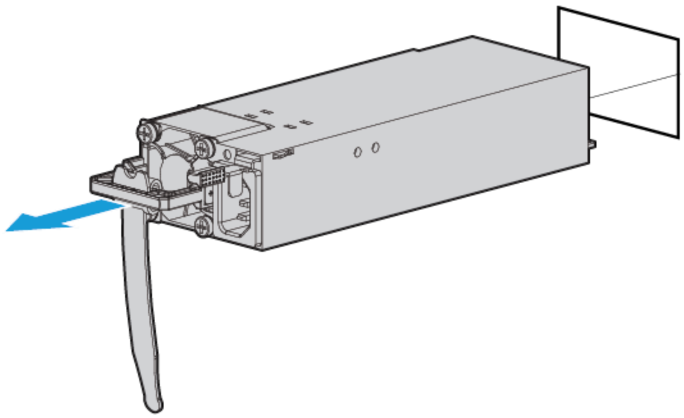


Non-redundant hot-plug power supply

1. Do one of the following:
   - For tower models, open and remove the tower bezel (on page 25).
   - For rack models, if installed, remove the security bezel (on page 26).
2. Power down the server (on page 25).
3. Remove the cord connected to the power supply.

   ⚠ **WARNING:** To reduce the risk of personal injury from hot surfaces, allow the power supply or power supply blank to cool before touching it.

4. Remove the power supply.



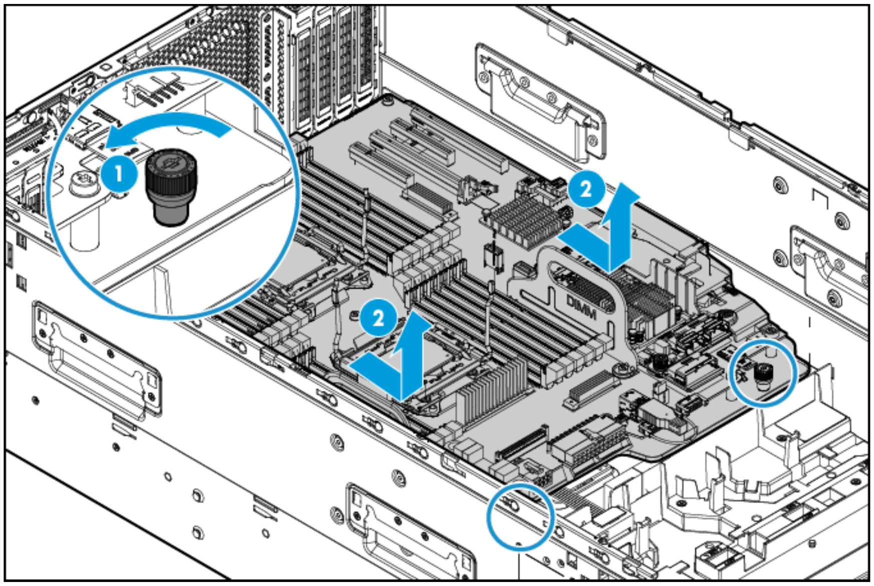
To replace the component, reverse the removal procedure.

Power supply backplane

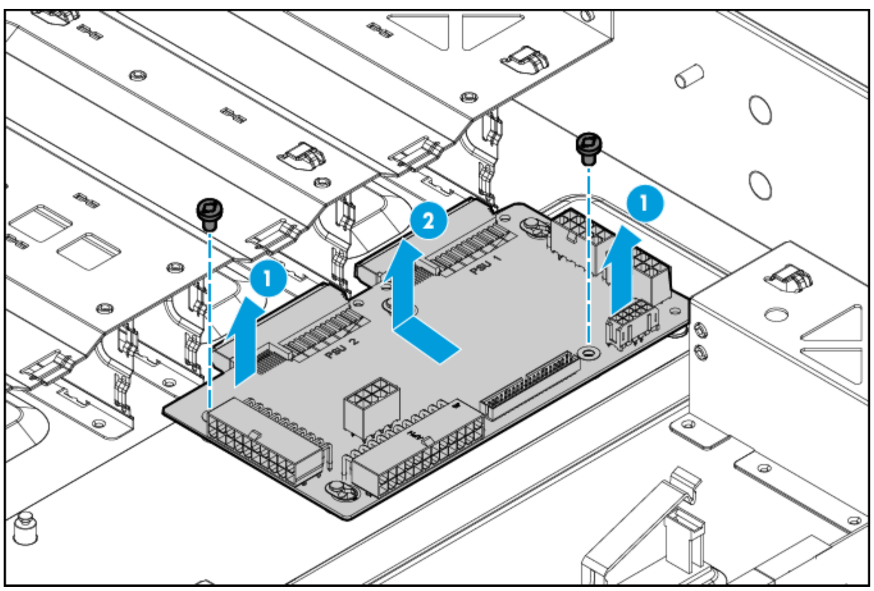
△ **CAUTION:** To prevent improper cooling and thermal damage, do not operate the server unless all bays are populated with either a component or a blank.

1. Do one of the following:
   - For tower models, open and remove the tower bezel (on page 25).
   - For rack models, if installed, remove the security bezel (on page 26).
2. Power down the server (on page 25).
3. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
4. Do one of the following:
   - For tower models, place the server on a flat, level surface with the access panel facing up.
   - For rack models, extend the server from the rack (on page 25).
5. Remove the access panel ("Access panel" on page 30).
6. Remove the air baffle (on page 27).

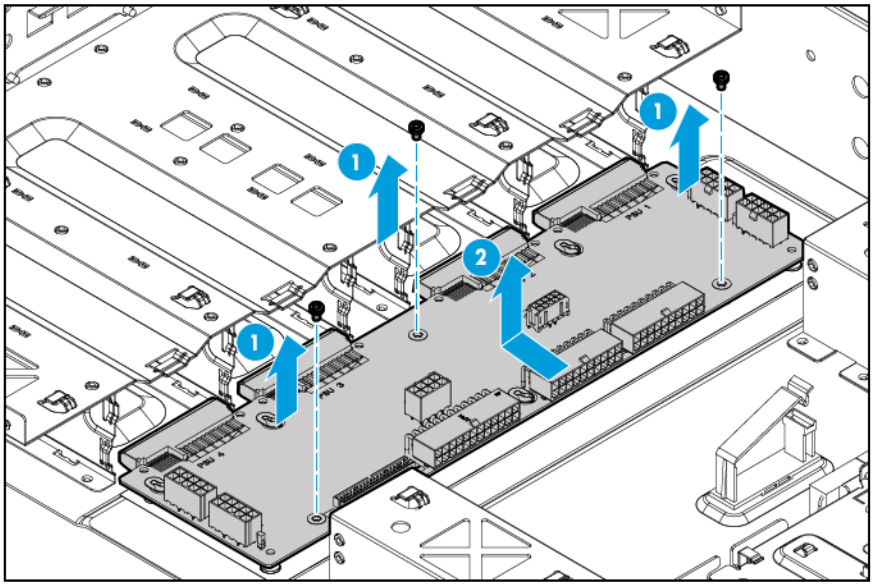
7. Remove the fan cage (on page 28).
8. Disconnect all cables connected to the system board.
9. Loosen the two system board thumbscrews.
10. Using the system board tray handles, slide the tray forward, and then remove the system board.



11. Disconnect all the cables connected to the power supply backplane.
12. Remove all power supplies.
13. Do one of the following:
    - Remove the two bay power supply backplane.



- Remove the four bay power supply backplane.



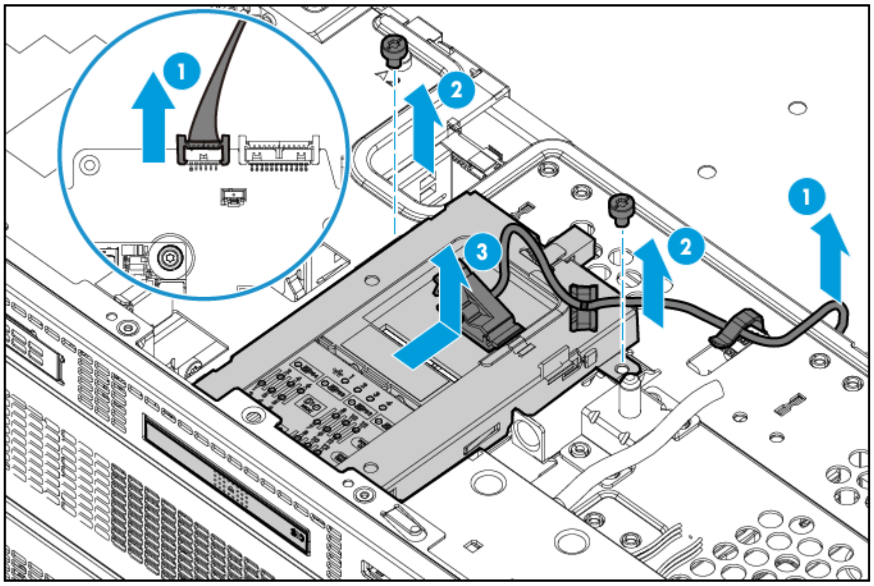
To replace the component, reverse the removal procedure.

Systems Insight Display assembly

> **CAUTION:** When routing cables, always be sure that the cables are not in a position where they can be pinched or crimped.

1. Remove the security bezel (on page 26).
2. Power down the server (on page 25).
3. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
4. Extend the server from the rack (on page 25).
5. Remove the access panel ("Access panel" on page 30).
6. Remove the air baffle (on page 27).
7. Remove the fan cage (on page 28).
8. Disconnect the Systems Insight Display assembly cable from the system board. For more information, see "System board components (on page 79)."
9. Remove the screws securing the Systems Insight Display assembly.

10. Remove the Systems Insight Display assembly.



To replace the component, reverse the removal procedure.

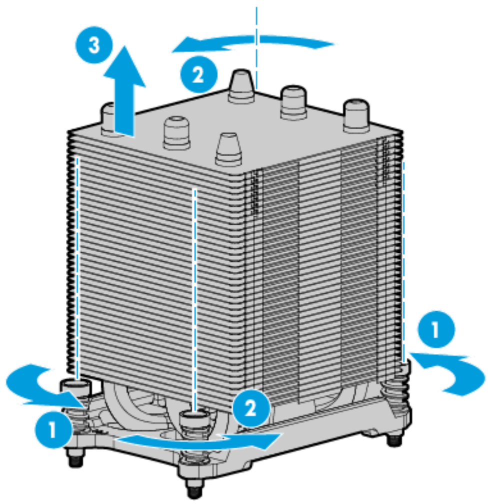
Heatsink

⚠ **WARNING:** To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

△ **CAUTION:** The heatsink thermal interface media is not reusable and must be replaced if the heatsink is removed from the processor after it has been installed.

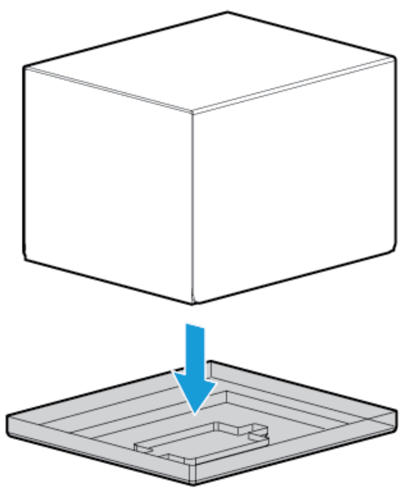
1. Do one of the following:
   - For tower models, open and remove the tower bezel (on page 25).
   - For rack models, if installed, remove the security bezel (on page 26).
2. Power down the server (on page 25).
3. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
4. Do one of the following:
   - For tower models, place the server on a flat, level surface with the access panel facing up.
   - For rack models, extend the server from the rack (on page 25).
5. Remove the access panel ("Access panel" on page 30).
6. Remove the air baffle (on page 27).
7. Remove the heatsink:
   a. Loosen one pair of diagonally opposite screws halfway, and then loosen the other pair of screws.
   b. Completely loosen all screws in the same sequence.

c. Remove the heatsink from the processor backplate.



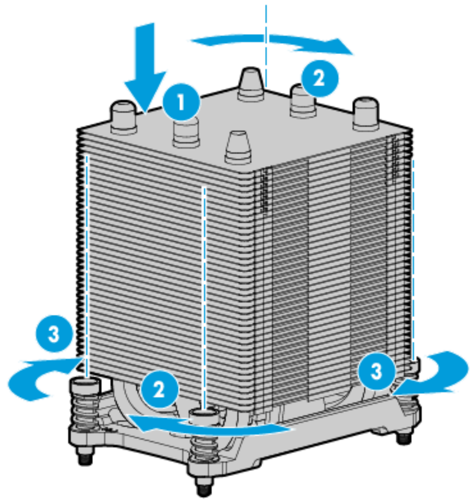
To replace the heatsink:

1. Use the alcohol swab to remove all the existing thermal grease from the processor. Allow the alcohol to evaporate before continuing.
2. Remove the thermal interface protective cover from the heatsink.



3. Install the heatsink:
   a. Position the heatsink on the processor backplate.
   b. Tighten one pair of diagonally opposite screws halfway, and then tighten the other pair of screws.

c. Finish the installation by completely tightening the screws in the same sequence.



4. Install the air baffle.
5. Install the access panel.
6. Do one of the following:
   - For tower models, return the server to an upright position, and then install the tower bezel.
   - For rack models, slide the server back into the rack.
7. Connect each power cord to the server.
8. Connect each power cord to the power source.
9. Press the Power On/Standby button.

   The server exits standby mode and applies full power to the system. The system power LED changes from amber to green.

Processor

WARNING: To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

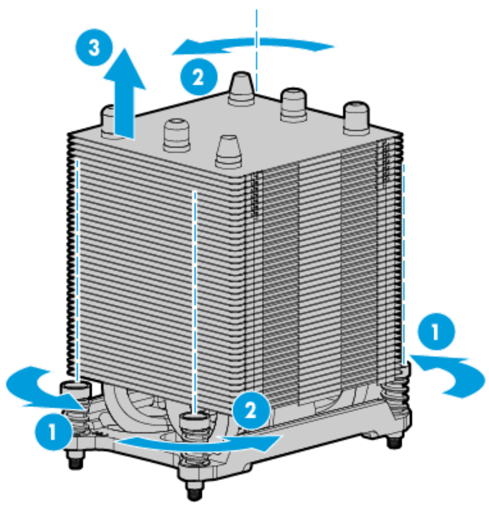
CAUTION: To prevent possible server malfunction and damage to the equipment, multiprocessor configurations must contain processors with the same part number.

CAUTION: The heatsink thermal interface media is not reusable and must be replaced if the heatsink is removed from the processor after it has been installed.

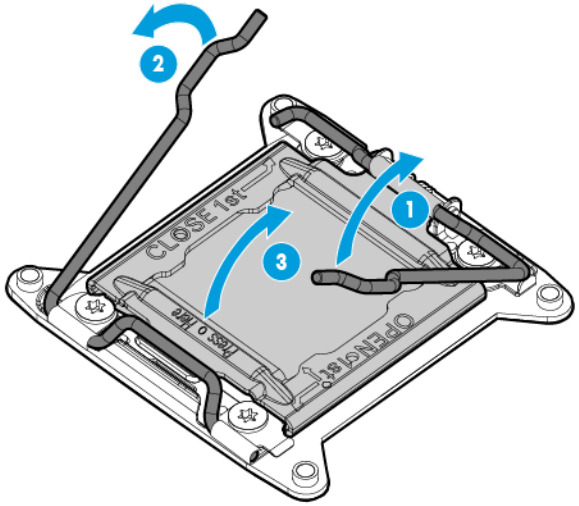
IMPORTANT: Processor socket 1 must be populated at all times or the server does not function.

1. Do one of the following:
   - For tower models, open and remove the tower bezel (on page 25).
   - For rack models, if installed, remove the security bezel (on page 26).

2. Power down the server (on page 25).
3. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
4. Do one of the following:
   - For tower models, place the server on a flat, level surface with the access panel facing up.
   - For rack models, extend the server from the rack (on page 25).
5. Remove the access panel ("Access panel" on page 30).
6. Remove the air baffle (on page 27).
7. Remove the heatsink:
   a. Loosen one pair of diagonally opposite screws halfway, and then loosen the other pair of screws.
   b. Completely loosen all screws in the same sequence.
   c. Remove the heatsink from the processor backplate.

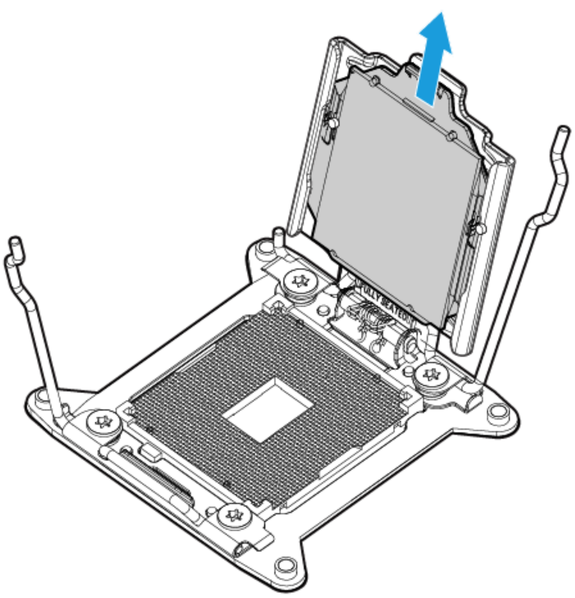


8. Open each of the processor locking levers in the order indicated, and then open the processor retaining bracket.



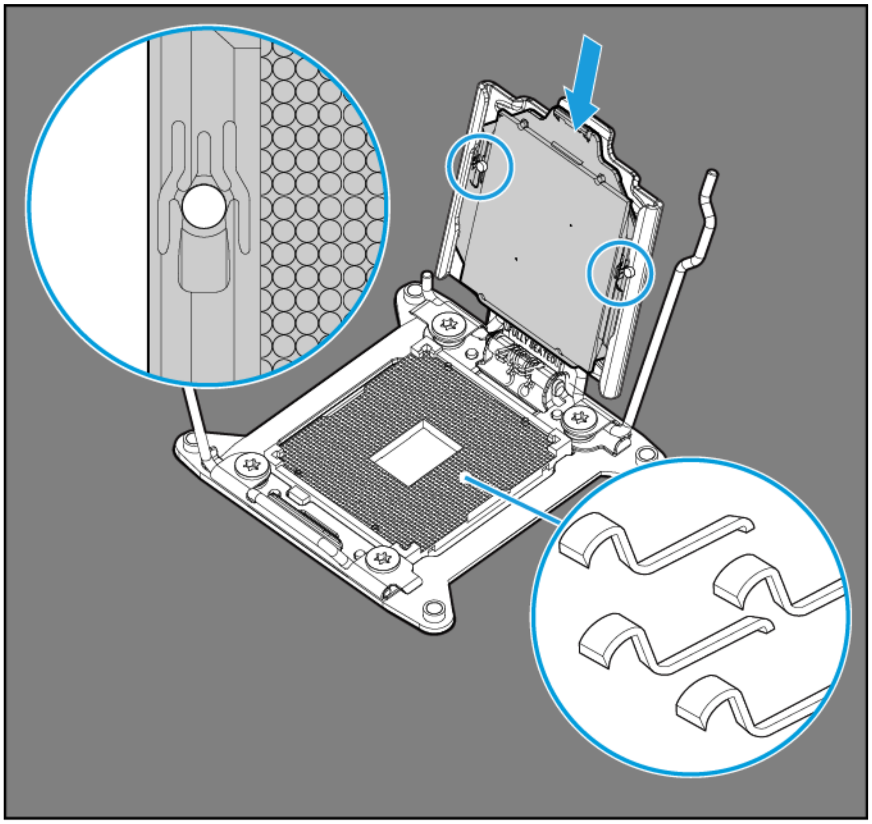
> △ **CAUTION: THE PINS ON THE SYSTEM BOARD ARE VERY FRAGILE AND EASILY DAMAGED.** To avoid damage to the system board, do not touch the processor or the processor socket contacts.

9. Remove the processor from the processor retaining bracket.



To replace a processor:

1. Install the processor. Verify that the processor is fully seated in the processor retaining bracket by visually inspecting the processor installation guides on either side of the processor. **THE PINS ON THE SYSTEM BOARD ARE VERY FRAGILE AND EASILY DAMAGED**.

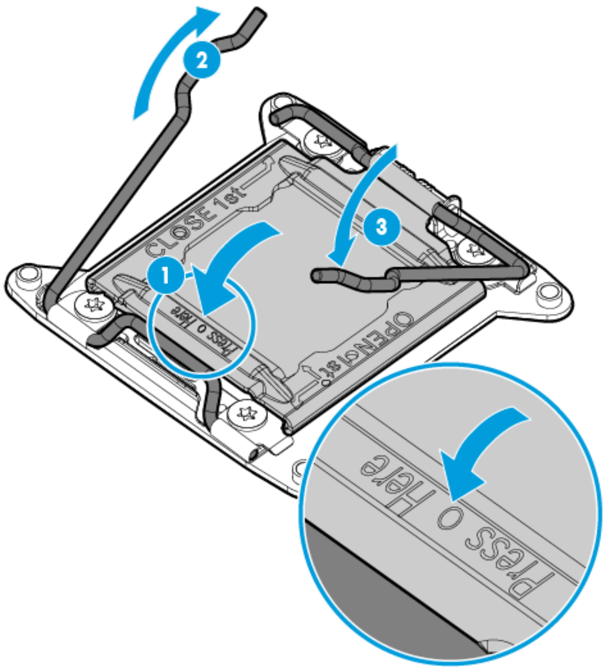


> △ **CAUTION:** **THE PINS ON THE SYSTEM BOARD ARE VERY FRAGILE AND EASILY DAMAGED.** To avoid damage to the system board, do not touch the processor or the processor socket contacts.

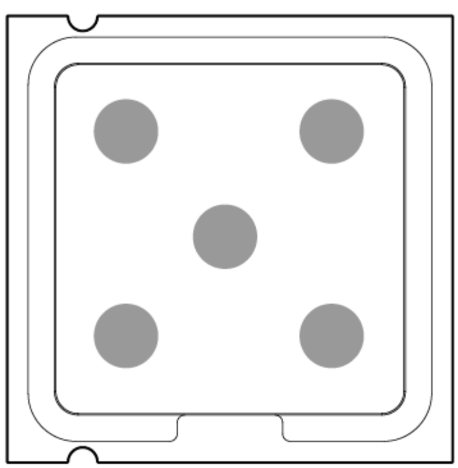
> △ **CAUTION:** Do not press down on the processor. Pressing down on the processor may cause damage to the processor socket and the system board. Press only in the area indicated on the processor retaining bracket.

2. Close the processor retaining bracket. When the processor is installed properly inside the processor retaining bracket, the processor retaining bracket clears the flange on the front of the socket.

3. Press and hold the processor retaining bracket in place, and then close each processor locking lever. Press only in the area indicated on the processor retaining bracket.

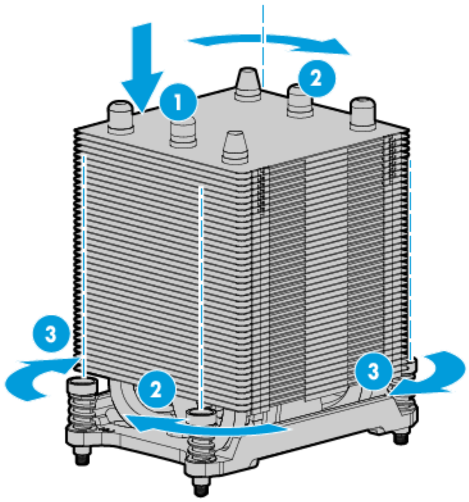


4. Install the processor socket cover onto the processor socket of the failed system board.
5. Use the alcohol swab to remove all the existing thermal grease from the heatsink. Allow the alcohol to evaporate before continuing.
6. Apply the thermal grease to the top of the processor in the following pattern.



7. Install the heatsink:
   a. Position the heatsink on the processor backplate.
   b. Tighten the diagonally opposite screws clockwise and then tighten the other pair of screws.

c. Finish the installation by completely tightening the screws in the same sequence.



8. Install the air baffle.
9. Install the access panel.
10. Do one of the following:
    - For tower models, return the server to an upright position.
    - For rack models, slide the server back into the rack.
11. Connect each power cord to the server.
12. Connect each power cord to the power source.
13. Press the Power On/Standby button.
14. The server exits standby mode and applies full power to the system. The system power LED changes from amber to green.
15. Do one of the following:
    - For tower models, install the tower bezel.
    - For rack models, if removed, install the security bezel.

DIMMs

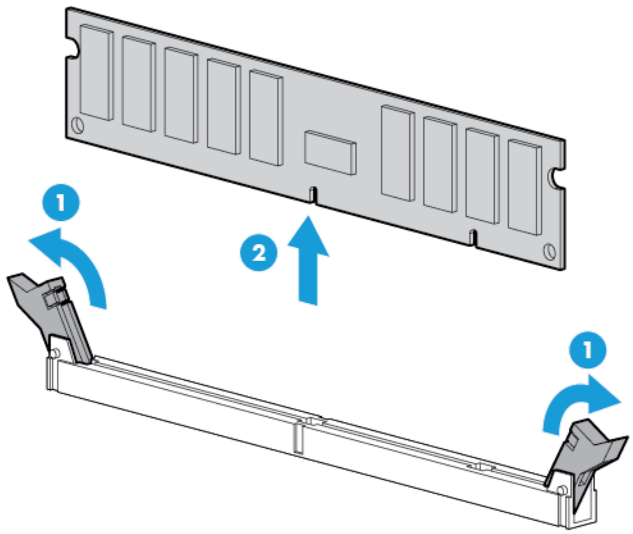
IMPORTANT: This server does not support mixing LRDIMMs and RDIMMs. Attempting to mix any combination of these DIMMs can cause the server to halt during BIOS initialization.

To identify the DIMMs installed in the server, see "DIMM slots (on page 80)."

1. Do one of the following:
    - For tower models, open and remove the tower bezel (on page 25).
    - For rack models, if installed, remove the security bezel (on page 26).
2. Power down the server (on page 25).
3. Remove all power:
    a. Disconnect each power cord from the power source.

b. Disconnect each power cord from the server.

4. Do one of the following:
   a. For tower models, place the server on a flat, level surface with the access panel facing up.
   b. For rack models, extend the server from the rack (on page 25).
5. Remove the access panel ("Access panel" on page 30).
6. Remove the air baffle (on page 27).
7. Remove the DIMM.



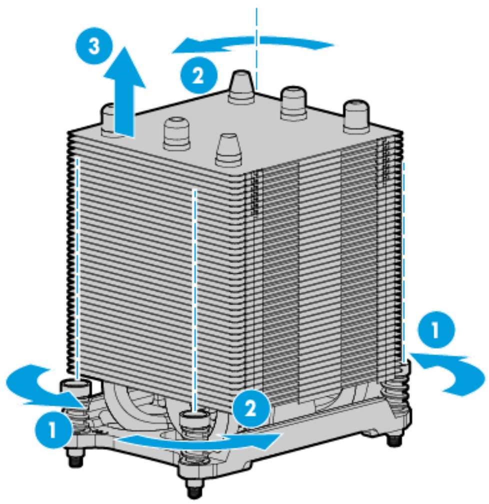
To replace the component, reverse the removal procedure.

For DIMM configuration information, see the server user guide.

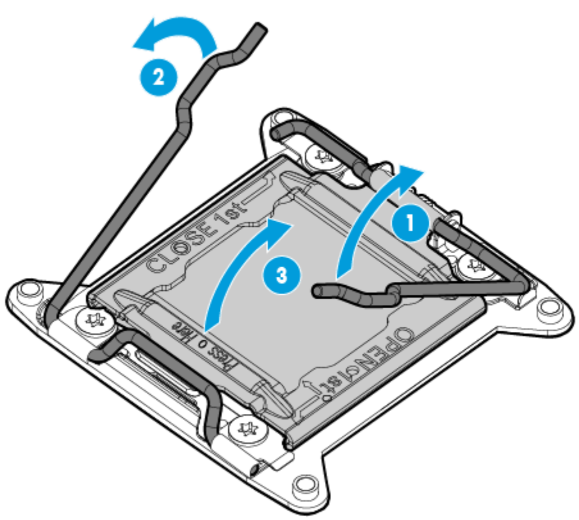
System board

1. Do one of the following:
   - For tower models, open and remove the tower bezel (on page 25).
   - For rack models, if installed, remove the security bezel (on page 26).
2. Power down the server (on page 25).
3. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
4. Do one of the following:
   - For tower models, place the server on a flat, level surface with the access panel facing up.
   - For rack models, extend the server from the rack (on page 25).
5. Remove the access panel ("Access panel" on page 30).
6. Remove the air baffle (on page 27).
7. Remove the fan cage (on page 28).
8. Remove all DIMMs ("DIMMs" on page 45).

9. Disconnect all cables connected to the system board.
10. Remove the heatsinks:
    a. Loosen one pair of diagonally opposite screws halfway, and then loosen the other pair of screws.
    b. Completely loosen all screws in the same sequence.
    c. Remove the heatsink from the processor backplate.

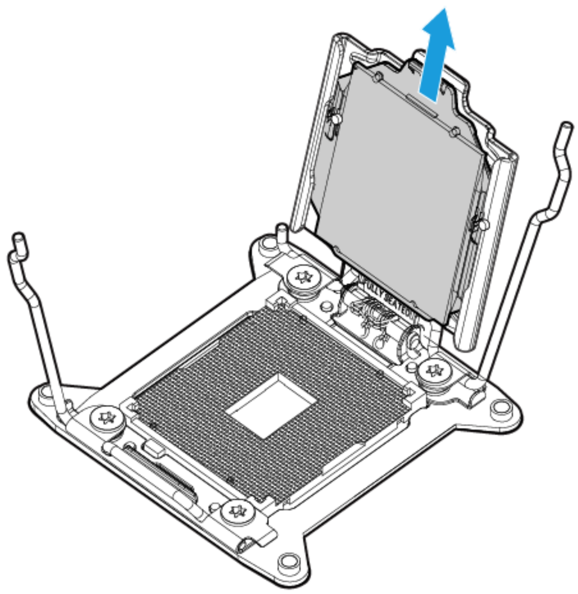


11. Open each of the processor locking levers in the order indicated, and then open the processor retaining bracket.



> **CAUTION:** **THE PINS ON THE SYSTEM BOARD ARE VERY FRAGILE AND EASILY DAMAGED.** To avoid damage to the system board, do not touch the processor or the processor socket contacts.

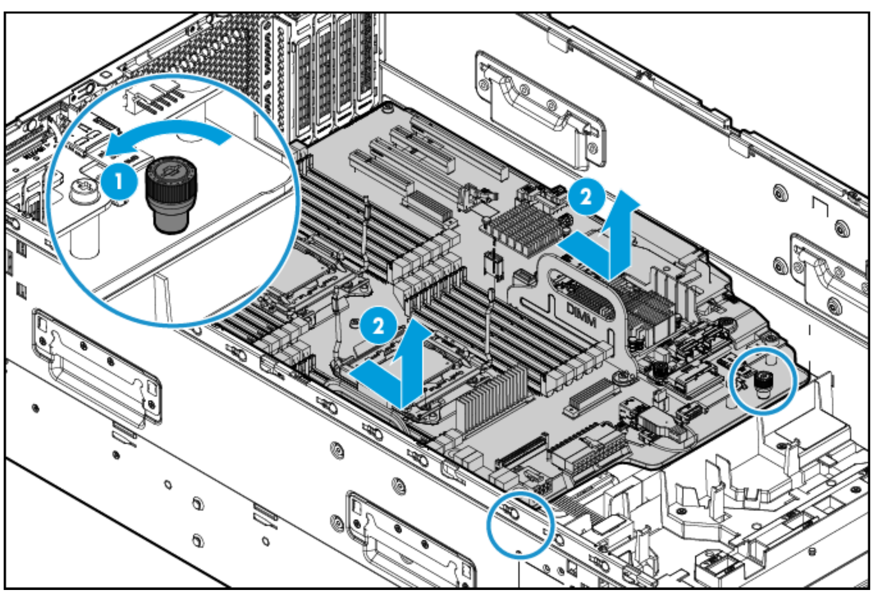
12. Remove the processor from the processor retaining bracket.



> **CAUTION:** To avoid damage to the system board:
>
> - Do not touch the processor socket contacts.
> - Always install the processor socket cover after removing the processor from the socket.
> - Do not tilt or slide the processor when lowering the processor into the socket.

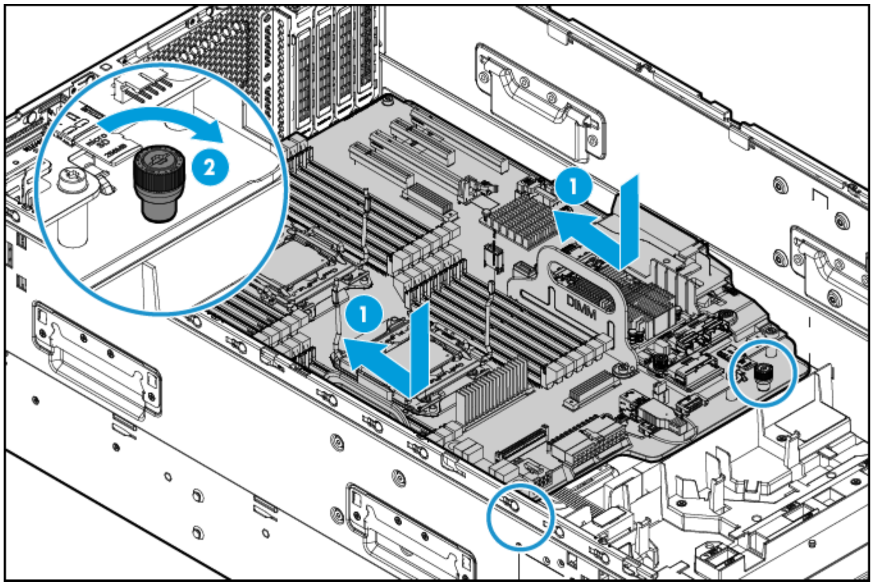
> **CAUTION:** Removal of the processor or heatsink renders the thermal layer between the processor and heatsink useless. Clean the component with the provided alcohol swab, then add thermal grease.

13. Loosen the two system board thumbscrews.
14. Using the system board tray handles, slide the tray forward, and then remove the failed system board.

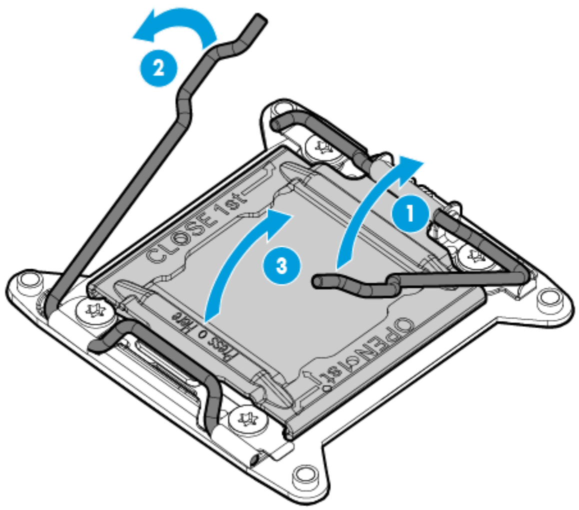


To replace the system board:

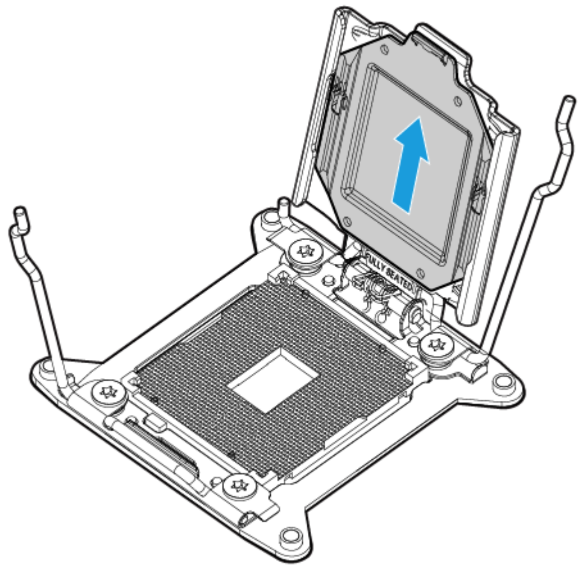
1. Install the spare system board and tighten the two thumbscrews.



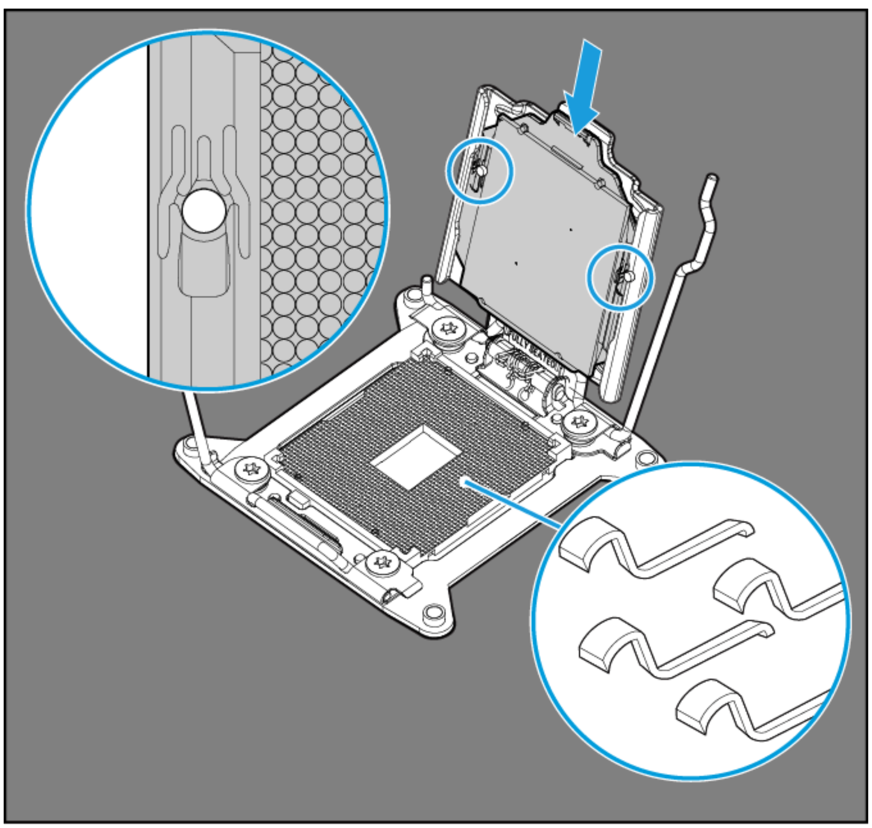
2. Open each of the processor locking levers in the order indicated, and then open the processor retaining bracket.



3. Remove the clear processor socket cover. Retain the processor socket cover for future use.



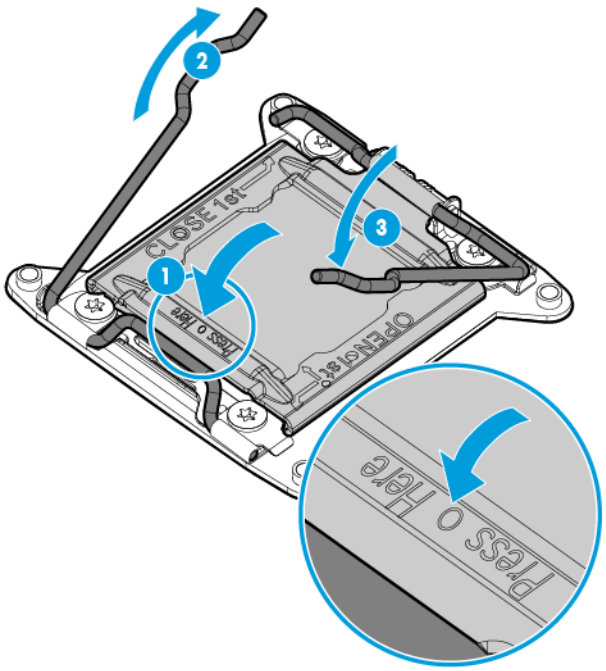
4. Install the processor. Verify that the processor is fully seated in the processor retaining bracket by visually inspecting the processor installation guides on either side of the processor. **THE PINS ON THE SYSTEM BOARD ARE VERY FRAGILE AND EASILY DAMAGED.**



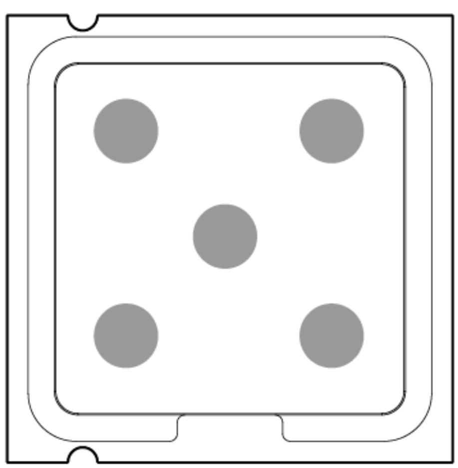
> △ **CAUTION:** Do not press down on the processor. Pressing down on the processor may cause damage to the processor socket and the system board. Press only in the area indicated on the processor retaining bracket.

△ **CAUTION:** Close and hold down the processor cover socket while closing the processor locking levers. The levers should close without resistance. Forcing the levers closed can damage the processor and socket, requiring system board replacement.

5. Close the processor retaining bracket. When the processor is installed properly inside the processor retaining bracket, the processor retaining bracket clears the flange on the front of the socket.
6. Press and hold the processor retaining bracket in place, and then close each processor locking lever. Press only in the area indicated on the processor retaining bracket.

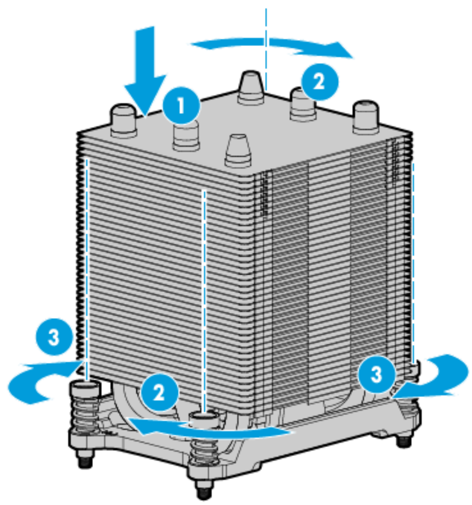


7. Install the processor socket cover onto the processor socket of the failed system board.
8. Clean the old thermal grease from the heatsink and the top of the processor with the alcohol swab. Allow the alcohol to evaporate before continuing.
9. Apply all the grease to the top of the processor in the following pattern to ensure even distribution.



10. Install the heatsink:

a. Position the heatsink on the processor backplate.
b. Tighten one pair of diagonally opposite screws clockwise and then tighten the other pair of screws.
c. Finish the installation completely by tightening the screws in the same sequence.



IMPORTANT: Install all components with the same configuration that was used on the failed system board.

11. Install all components removed from the failed system board.
12. Install the fan cage.
13. Install the air baffle.
14. Install the access panel.
15. Install the server.
16. Connect each power cord to the server.
17. Connect each power cord to the power source.
18. Press the Power On/Standby button.

    The server exits standby mode and applies full power to the system. The system power LED changes from amber to green.
19. Do one of the following:
    - For tower models, install the tower bezel.
    - For rack models, if removed, install the security bezel.

After you replace the system board, you must re-enter the server serial number and the product ID.

1. During the server startup sequence, press the **F9** key to access UEFI System Utilities.
2. Select the **System Configuration** > **BIOS/Platform Configuration (RBSU)** > **Advanced Options** > **Advanced System ROM Options** > **Serial Number**, and then press the **Enter** key.
3. Enter the serial number and press the **Enter** key. The following message appears:
   ```
   The serial number should only be modified by qualified service personnel.
   This value should always match the serial number located on the chassis.
   ```
4. Press the **Enter** key to clear the warning.

5. Enter the serial number and press the **Enter** key.
6. Select **Product ID**. The following warning appears:

```
Warning: The Product ID should ONLY be modified by qualified service
personnel. This value should always match the Product ID located on the
chassis.
```

7. Enter the product ID and press the **Enter** key.
8. Press the **F10** key to confirm exiting System Utilities. The server automatically reboots.

System battery

If the server no longer automatically displays the correct date and time, you might have to replace the battery that provides power to the real-time clock.

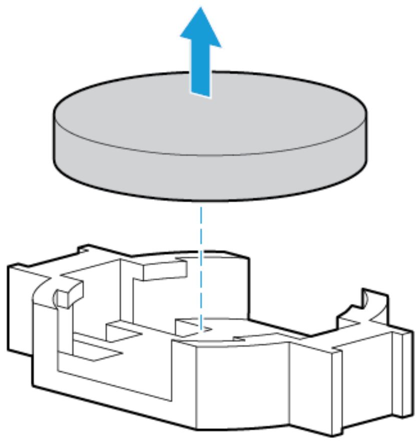
⚠ **WARNING:** The computer contains an internal lithium manganese dioxide, a vanadium pentoxide, or an alkaline battery pack. A risk of fire and burns exists if the battery pack is not properly handled. To reduce the risk of personal injury:

- Do not attempt to recharge the battery.
- Do not expose the battery to temperatures higher than 60°C (140°F).
- Do not disassemble, crush, puncture, short external contacts, or dispose of in fire or water.
- Replace only with the spare designated for this product.

To remove the component:

1. Do one of the following:
   - For tower models, open and remove the tower bezel (on page 25).
   - For rack models, if installed, remove the security bezel (on page 26).
2. Power down the server (on page 25).
3. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
4. Do one of the following:
   - For tower models, place the server on a flat, level surface with the access panel facing up.
   - For rack models, extend the server from the rack (on page 25).
5. Remove the access panel ("Access panel" on page 30).
6. Remove the air baffle (on page 27).
7. Remove the fan cage (on page 28).

8. Remove the battery.



To replace the component, reverse the removal procedure.

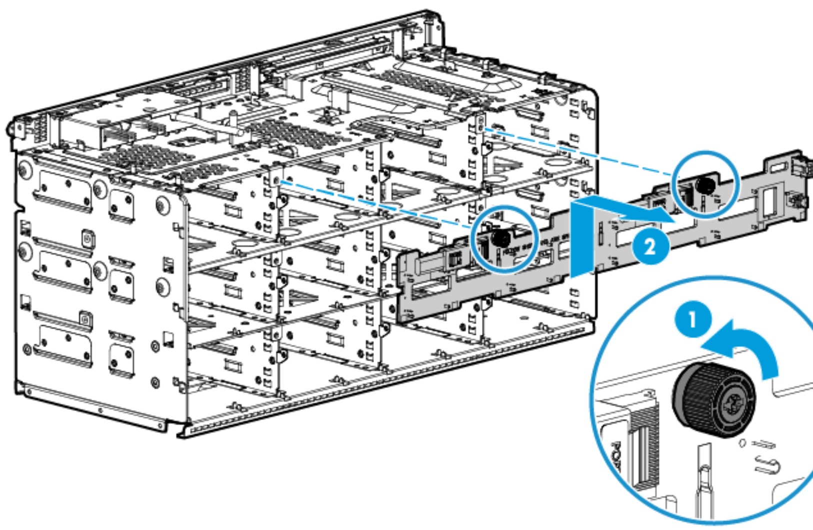
IMPORTANT: Replacing the system board battery resets the system ROM to its default configuration. After replacing the battery, reconfigure the system through RBSU.

For more information about battery replacement or proper disposal, contact an authorized reseller or an authorized service provider.

8-LFF drive backplane

1. Do one of the following:
   - For tower models, open and remove the tower bezel (on page 25).
   - For rack models, if installed, remove the security bezel (on page 26).
2. Power down the server (on page 25).
3. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
4. Do one of the following:
   - For tower models, place the server on a flat, level surface with the access panel facing up.
   - For rack models, extend the server from the rack (on page 25).
5. Remove the access panel ("Access panel" on page 30).
6. Remove the air baffle (on page 27).
7. Remove the fan cage (on page 28).
8. Disconnect all cables from the drive backplane.

9. Loosen the thumbscrews and remove the drive backplane.

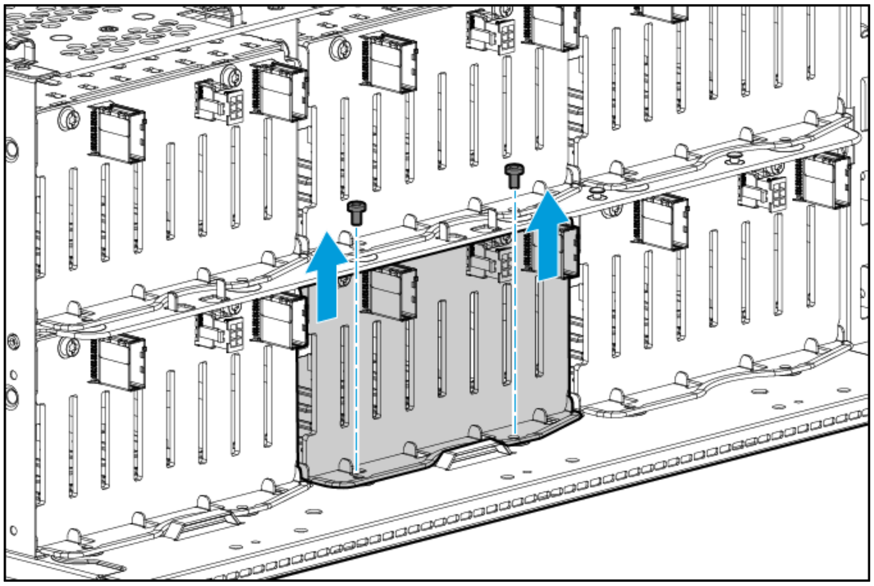


To replace the component, reverse the removal procedure.

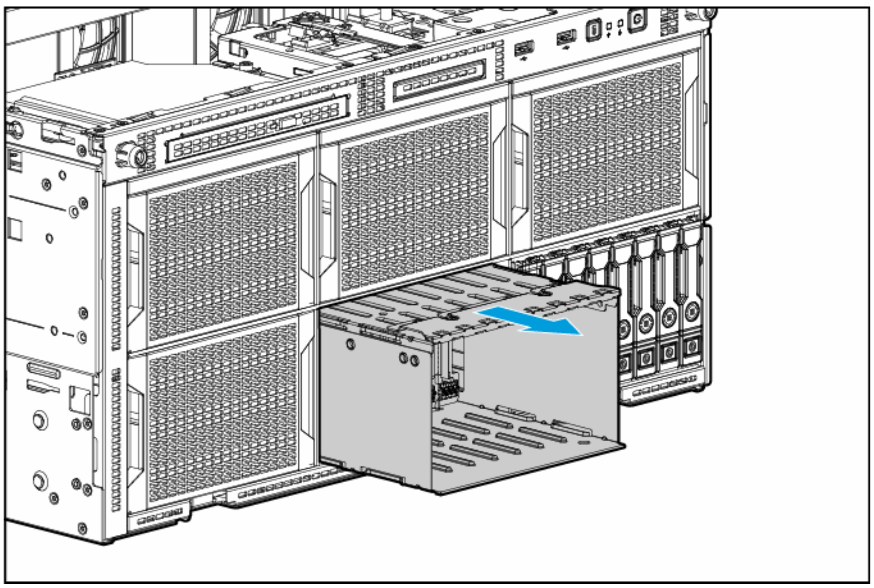
8-SFF drive backplane

1. Do one of the following:
   - For tower models, open and remove the tower bezel (on page 25).
   - For rack models, if installed, remove the security bezel (on page 26).
2. Power down the server (on page 25).
3. Remove all power:
   a. Disconnect each power cord from the power source.
   b. Disconnect each power cord from the server.
4. Remove all installed drives from drive cage.
5. Do one of the following:
   - For tower models, place the server on a flat, level surface with the access panel facing up.
   - For rack models, extend the server from the rack (on page 25).
6. Remove the access panel ("Access panel" on page 30).
7. Remove the air baffle (on page 27).
8. Remove the fan cage (on page 28).
9. Disconnect all cables from the drive backplane.

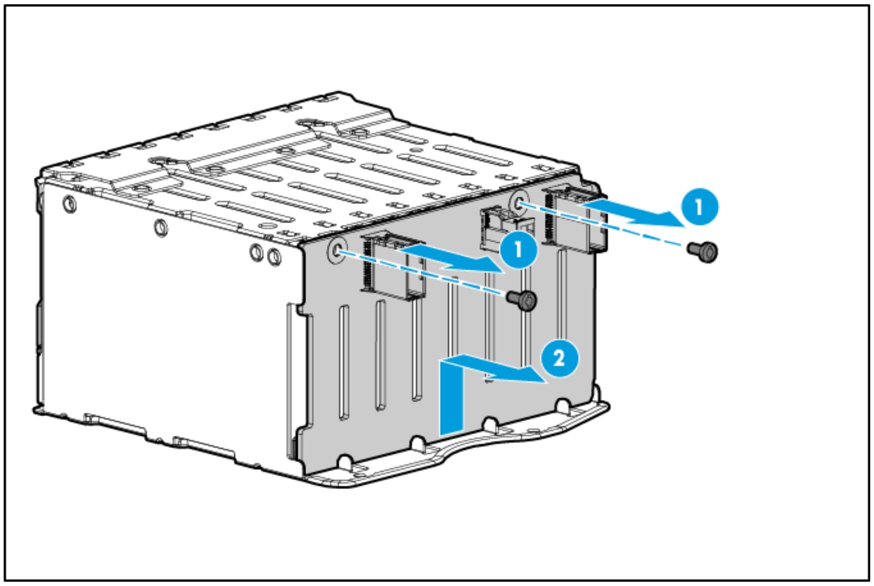
10. Loosen the two screws from rear side of the SFF drive cage.



11. Remove the SFF drive cage.



12. Loosen the two screws from the drive backplane and remove the drive backplane from the drive cage.



To replace the component, reverse the removal procedure.

HP Trusted Platform Module

The TPM is not a customer-removable part.

> △ **CAUTION:** Any attempt to remove an installed TPM from the system board breaks or disfigures the TPM security rivet. Upon locating a broken or disfigured rivet on an installed TPM, administrators should consider the system compromised and take appropriate measures to ensure the integrity of the system data.

If you suspect a TPM board failure, leave the TPM installed and remove the system board. Contact an HP authorized service provider for a replacement system board and TPM board.

Cabling

Cabling overview

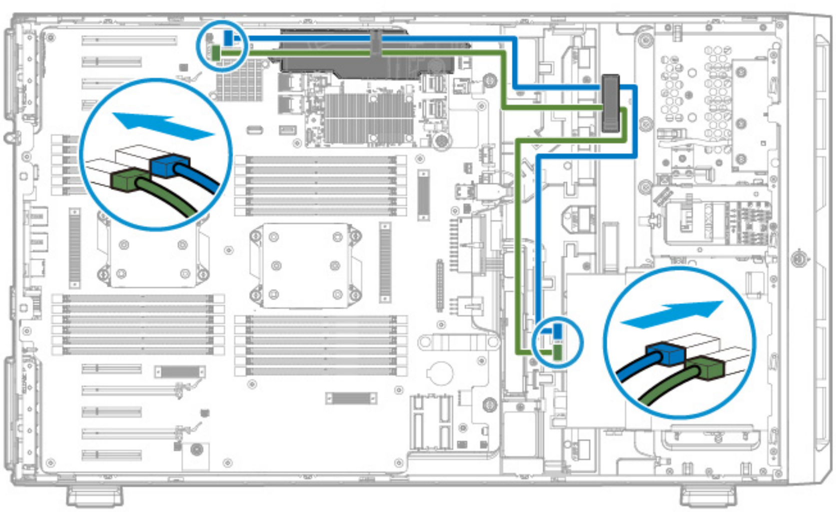
This section provides guidelines that help you make informed decisions about cabling the server and hardware options to optimize performance.

For information on cabling peripheral components, refer to the white paper on high-density deployment at the HP website (http://www.hp.com/products/servers/platforms).

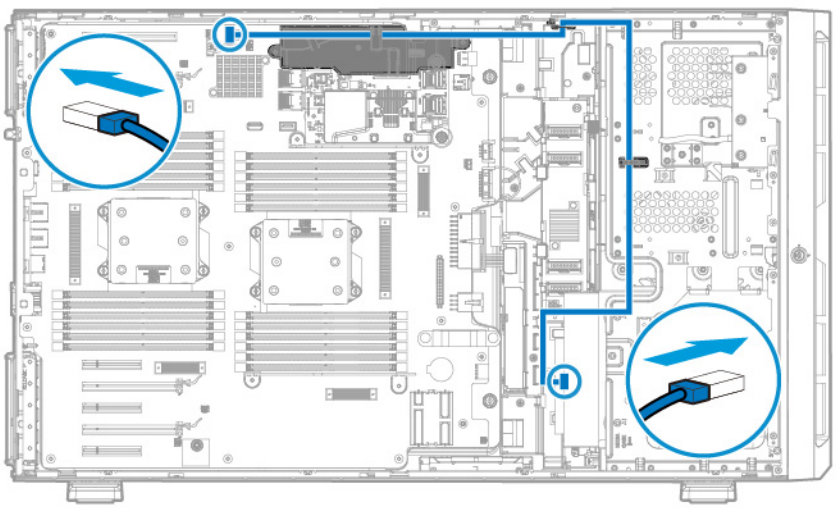
△ **CAUTION:** When routing cables, always be sure that the cables are not in a position where they can be pinched or crimped.

Media device data cabling

- SFF model cabling

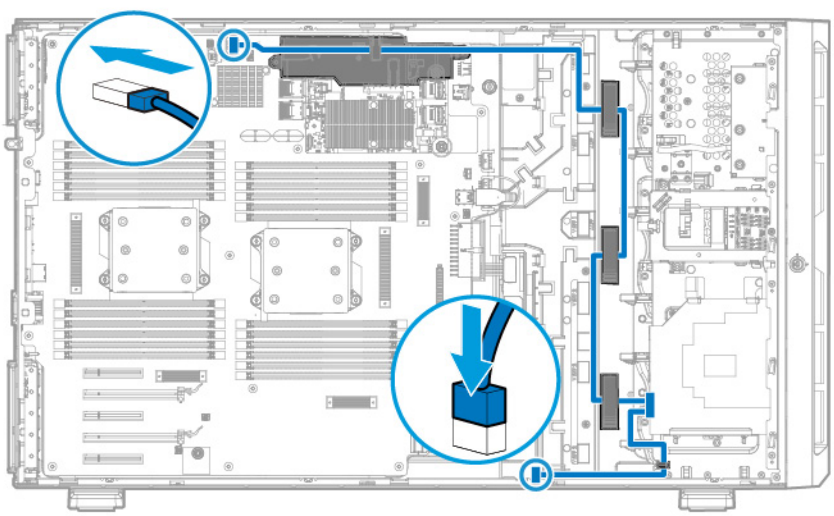


- LFF model cabling

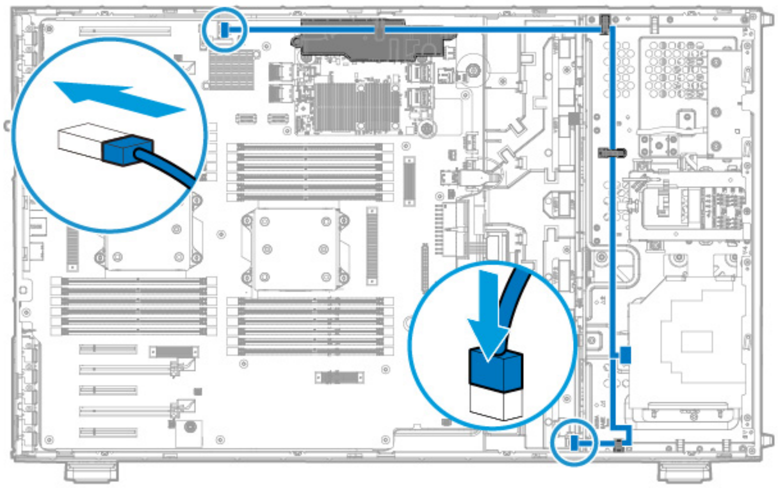


Optical device cabling

- SFF model cabling

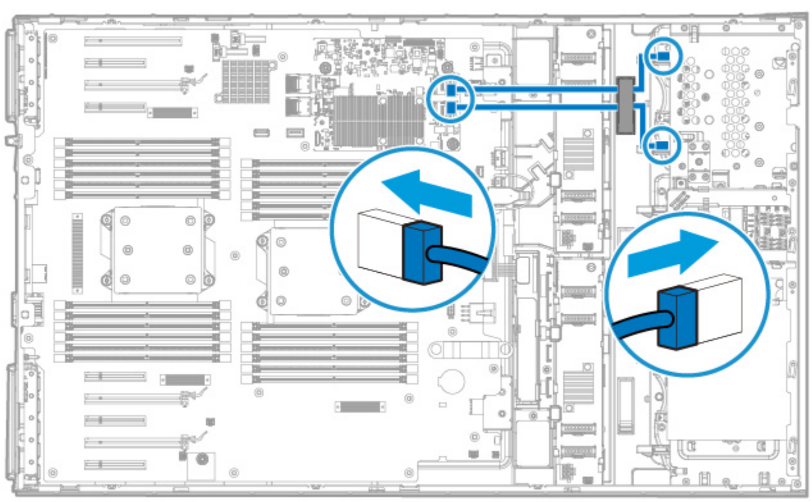


- LFF model cabling

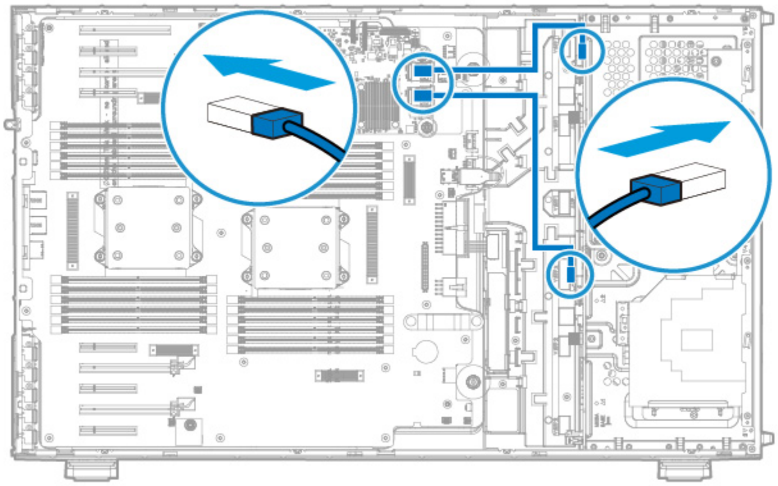


HP Flexible Smart Array Controller Mini-SAS cabling

- SFF configuration



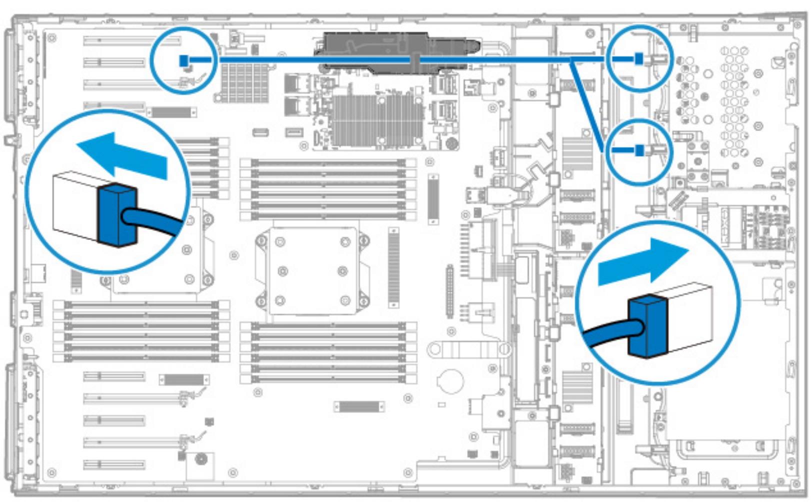
- LFF configuration



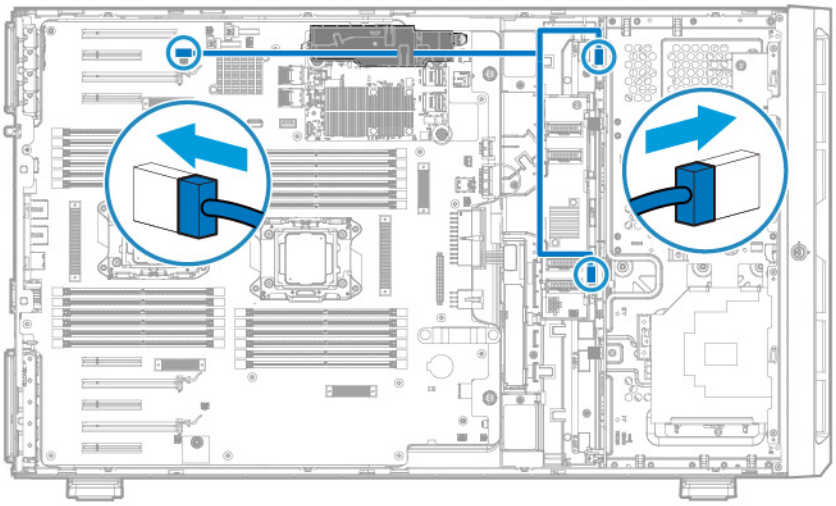
HP Smart Array Controller Mini-SAS Y-cabling

Route the two ends of the Mini-SAS Y-cable through the cable management clips, and then connect them to the drive backplane:

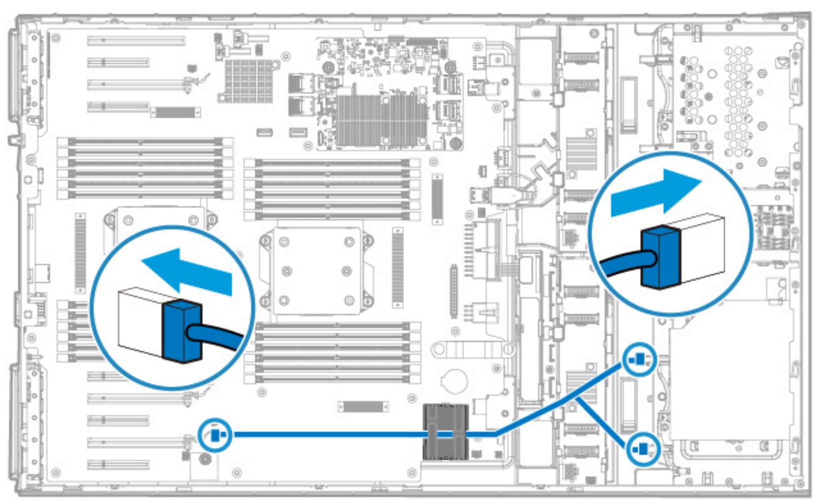
- Cable routing if the HP Smart Array controller is installed in PCIe slot 1 to 4:
    - SFF configuration



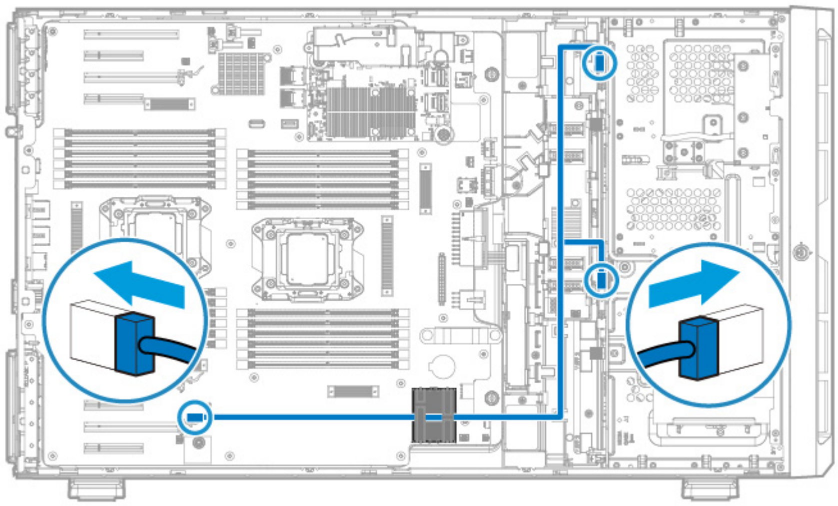
- LFF configuration



- Cable routing if the HP Smart Array controller is installed in PCIe slot 6 to 9:
  - SFF configuration



- LFF configuration



Diagnostic tools

HP UEFI System Utilities

The HP UEFI System Utilities is embedded in the system ROM. The UEFI System Utilities enable you to perform a wide range of configuration activities, including:

- Configuring system devices and installed options
- Enabling and disabling system features
- Displaying system information
- Selecting the primary boot controller
- Configuring memory options
- Selecting a language
- Launching other pre-boot environments such as the Embedded UEFI Shell and Intelligent Provisioning

For more information on the HP UEFI System Utilities, see the *HP UEFI System Utilities User Guide for HP ProLiant Gen9 Servers* on the HP website (http://www.hp.com/go/ProLiantUEFI/docs).

Scan the QR code located at the bottom of the screen to access mobile-ready online help for the UEFI System Utilities and UEFI Shell. For on-screen help, press **F1**.

Using HP UEFI System Utilities

To use the System Utilities, use the following keys.

Action	**Key**
Access System Utilities	F9 during server POST
Navigate menus	Up and Down arrows
Select items	Enter
Save selections	F10
Access Help for a highlighted configuration option*	F1

*Scan the QR code on the screen to access online help for the UEFI System Utilities and UEFI Shell.

Default configuration settings are applied to the server at one of the following times:

- Upon the first system power-up
- After defaults have been restored

Default configuration settings are sufficient for typical server operations; however, you can modify configuration settings as needed. The system prompts you for access to the System Utilities each time the system is powered up.

Flexible boot control

This feature enables you to do the following:

- Add Boot Options
  - Browse all FAT16 and FAT32 file systems.
  - Select an X64 UEFI application with an .EFI extension to add as a new UEFI boot option, such as an OS boot loader or other UEFI application.

    The new boot option is appended to the boot order list. When you select a file, you are prompted to enter the boot option description (which is then displayed in the Boot menu), as well as any optional data to be passed to an .EFI application.
- Boot to System Utilities

  Toward the end of the boot process, the boot options screen appears. This screen is visible for several seconds before the system attempts to boot from a supported boot device. During this time, you can access the System Utilities by pressing the **F9** key.
- Choose between supported modes: Legacy BIOS Boot Mode or UEFI Boot Mode

IMPORTANT: If the default boot mode settings are different than the user defined settings, the system may not boot the OS installation if the defaults are restored. To avoid this issue, use the User Defined Defaults feature in UEFI System Utilities to override the factory default settings.

For more information, see the *HP UEFI System Utilities User Guide for HP ProLiant Gen9 Servers* on the HP website (http://www.hp.com/go/ProLiantUEFI/docs).

Restoring and customizing configuration settings

You can reset all configuration settings to the factory default settings, or you can restore system default configuration settings, which are used instead of the factory default settings.

You can also configure default settings as necessary, and then save the configuration as the custom default configuration. When the system loads the default settings, it uses the custom default settings instead of the factory defaults.

Secure Boot configuration

Secure Boot is integrated in the UEFI specification on which the HP implementation of UEFI is based. Secure Boot is completely implemented in the BIOS and does not require special hardware. It ensures that each component launched during the boot process is digitally signed and that the signature is validated against a set of trusted certificates embedded in the UEFI BIOS. Secure Boot validates the software identity of the following components in the boot process:

- UEFI drivers loaded from PCIe cards
- UEFI drivers loaded from mass storage devices
- Pre-boot UEFI shell applications
- OS UEFI boot loaders

Once enabled, only firmware components and operating systems with boot loaders that have an appropriate digital signature can execute during the boot process. Only operating systems that support Secure Boot and have an EFI boot loader signed with one of the authorized keys can boot when Secure Boot is enabled. For

more information about supported operating systems, see the *HP UEFI System Utilities and Shell Release Notes* on the HP website (http://www.hp.com/go/ProLiantUEFI/docs).

A physically present user can customize the certificates embedded in the UEFI BIOS by adding/removing their own certificates.

Embedded UEFI shell

The system BIOS in all HP ProLiant Gen9 servers includes an Embedded UEFI Shell in the ROM. The UEFI Shell environment provides an API, a command line prompt, and a set of CLIs that allow scripting, file manipulation, and system information. These features enhance the capabilities of the UEFI System Utilities.

For more information, see the following documents:

- *HP UEFI Shell User Guide for HP ProLiant Gen9 Servers* on the HP website (http://www.hp.com/go/ProLiantUEFI/docs)
- *UEFI Shell Specification* on the UEFI website (http://www.uefi.org/specifications)

Embedded Diagnostics option

The system BIOS in all HP ProLiant Gen9 servers includes an Embedded Diagnostics option in the ROM. The Embedded Diagnostics option can run comprehensive diagnostics of the server hardware, including processors, memory, drives, and other server components.

For more information on the Embedded Diagnostics option, see the *HP UEFI System Utilities User Guide for HP ProLiant Gen9 Servers* on the HP website (http://www.hp.com/go/ProLiantUEFI/docs).

HP RESTful API support for UEFI

HP ProLiant Gen9 servers include support for a UEFI compliant System BIOS, along with UEFI System Utilities and Embedded UEFI Shell pre-boot environments. HP ProLiant Gen9 servers also support configuring the UEFI BIOS settings using the HP RESTful API, a management interface that server management tools can use to perform configuration, inventory, and monitoring of an HP ProLiant server. A REST client uses HTTPS operations to configure supported server settings, such as UEFI BIOS settings.

For more information about the HP RESTful API and the HP RESTful Interface Tool, see the HP website (http://www.hp.com/support/restfulinterface/docs).

Re-entering the server serial number and product ID

After you replace the system board, you must re-enter the server serial number and the product ID.

1. During the server startup sequence, press the **F9** key to access UEFI System Utilities.
2. Select the **System Configuration** > **BIOS/Platform Configuration (RBSU)** > **Advanced Options** > **Advanced System ROM Options** > **Serial Number**, and then press the **Enter** key.
3. Enter the serial number and press the **Enter** key. The following message appears:
   ```
   The serial number should only be modified by qualified service personnel.
   This value should always match the serial number located on the chassis.
   ```
4. Press the **Enter** key to clear the warning.
5. Enter the serial number and press the **Enter** key.
6. Select **Product ID**. The following warning appears:

```
Warning: The Product ID should ONLY be modified by qualified service
personnel. This value should always match the Product ID located on the
chassis.
```

7. Enter the product ID and press the **Enter** key.
8. Press the **F10** key to confirm exiting System Utilities. The server automatically reboots.

HP Insight Diagnostics

HP Insight Diagnostics is a proactive server management tool, available in both offline and online versions, that provides diagnostics and troubleshooting capabilities to assist IT administrators who verify server installations, troubleshoot problems, and perform repair validation.

HP Insight Diagnostics Offline Edition performs various in-depth system and component testing while the OS is not running. To run this utility, boot the server using Intelligent Provisioning.

HP Insight Diagnostics Online Edition is a web-based application that captures system configuration and other related data needed for effective server management. Available in Microsoft Windows and Linux versions, the utility helps to ensure proper system operation.

For more information or to download the utility, see the HP website (http://www.hp.com/servers/diags). HP Insight Diagnostics Online Edition is also available in the SPP.

HP Insight Diagnostics survey functionality

HP Insight Diagnostics (on page 67) provides survey functionality that gathers critical hardware and software information on ProLiant servers.

This functionality supports operating systems that are supported by the server. For operating systems supported by the server, see the HP website (http://www.hp.com/go/supportos).

If a significant change occurs between data-gathering intervals, the survey function marks the previous information and overwrites the survey data files to reflect the latest changes in the configuration.

Survey functionality is installed with every Intelligent Provisioning-assisted HP Insight Diagnostics installation, or it can be installed through the SPP.

Active Health System

HP Active Health System provides the following features:

- Combined diagnostics tools/scanners
- Always on, continuous monitoring for increased stability and shorter downtimes
- Rich configuration history
- Health and service alerts
- Easy export and upload to Service and Support

The HP Active Health System monitors and records changes in the server hardware and system configuration. The Active Health System assists in diagnosing problems and delivering rapid resolution if server failures occur.

The Active Health System collects the following types of data:

- Server model

- Serial number
- Processor model and speed
- Storage capacity and speed
- Memory capacity and speed
- Firmware/BIOS

HP Active Health System does not collect information about Active Health System users' operations, finances, customers, employees, partners, or data center, such as IP addresses, host names, user names, and passwords. HP Active Health System does not parse or change operating system data from third-party error event log activities, such as content created or passed through by the operating system.

The data that is collected is managed according to the HP Data Privacy policy. For more information see the HP website (http://www.hp.com/go/privacy).

The Active Health System, in conjunction with the system monitoring provided by Agentless Management or SNMP Pass-thru, provides continuous monitoring of hardware and configuration changes, system status, and service alerts for various server components.

The Agentless Management Service is available in the SPP, which can be downloaded from the HP website (http://www.hp.com/go/spp/download). The Active Health System log can be downloaded manually from iLO or HP Intelligent Provisioning and sent to HP.

For more information, see the following documents:

- *HP iLO User Guide* on the HP website (http://www.hp.com/go/ilo/docs)
- *HP Intelligent Provisioning User Guide* on the HP website (http://www.hp.com/go/intelligentprovisioning/docs)

Integrated Management Log

The IML records hundreds of events and stores them in an easy-to-view form. The IML timestamps each event with 1-minute granularity.

You can view recorded events in the IML in several ways, including the following:

- From within HP SIM
- From within operating system-specific IML viewers:
  - For Windows: IML Viewer
  - For Linux: IML Viewer Application
- From within the iLO web interface
- From within HP Insight Diagnostics (on page 67)

USB support

HP provides standard USB 2.0 support, standard USB 3.0 support, and legacy USB support. Standard support is provided by the OS through the appropriate USB device drivers.

Before the OS loads, HP provides support for USB 2.0 devices through legacy USB support, which is enabled by default in the system ROM. USB 3.0 ports are not functional before the OS loads. The native OS provides USB 3.0 support through appropriate xHCI drivers.

Legacy USB support provides USB functionality in environments where USB support is not available normally. Specifically, HP provides legacy USB functionality for the following:

- POST (system boot)
- UEFI System Utilities
- Pre-boot UEFI shell
- DOS
- Operating environments which do not provide native USB support

External USB functionality

HP provides external USB support to enable local connection of USB devices for server administration, configuration, and diagnostic procedures.

For additional security, external USB functionality can be disabled through USB options in UEFI System Utilities.

Troubleshooting

Troubleshooting resources

The *HP ProLiant Gen9 Troubleshooting Guide, Volume I: Troubleshooting* provides procedures for resolving common problems and comprehensive courses of action for fault isolation and identification, issue resolution, and software maintenance on ProLiant servers and server blades. To view the guide, select a language:

- English (http://www.hp.com/support/Gen9_TSG_en)
- French (http://www.hp.com/support/Gen9_TSG_fr)
- Spanish (http://www.hp.com/support/Gen9_TSG_es)
- German (http://www.hp.com/support/Gen9_TSG_de)
- Japanese (http://www.hp.com/support/Gen9_TSG_ja)
- Simplified Chinese (http://www.hp.com/support/Gen9_TSG_zh_cn)

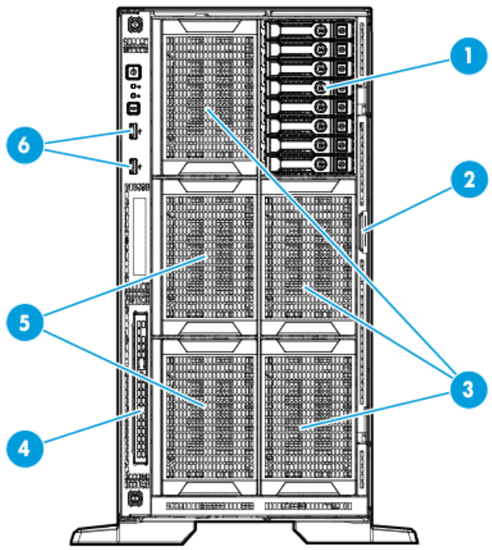
The *HP ProLiant Gen9 Troubleshooting Guide, Volume II: Error Messages* provides a list of error messages and information to assist with interpreting and resolving error messages on ProLiant servers and server blades. To view the guide, select a language:

- English (http://www.hp.com/support/Gen9_EMG_en)
- French (http://www.hp.com/support/Gen9_EMG_fr)
- Spanish (http://www.hp.com/support/Gen9_EMG_es)
- German (http://www.hp.com/support/Gen9_EMG_de)
- Japanese (http://www.hp.com/support/Gen9_EMG_ja)
- Simplified Chinese (http://www.hp.com/support/Gen9_EMG_zh_cn)

Component identification

Front panel components

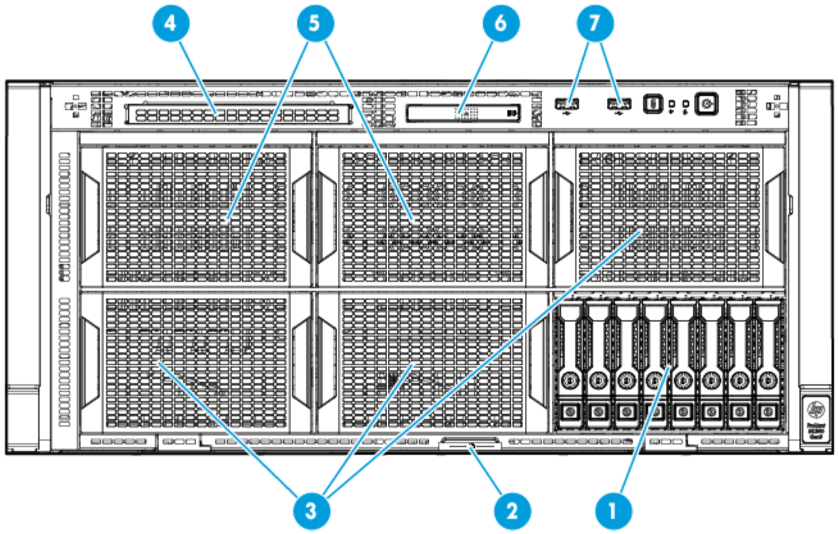
- SFF model (tower orientation)



Item	Description
1	SFF SAS/SATA drives
2	Serial number pull tab*
3	Drive cage bay
4	Optical drive bay
5	Media/drive cage bays
6	USB 2.0 connectors (2)

*The serial number pull tab is double-sided. One side shows the server serial number, and the reverse side shows the default iLO account information and the QR code. The same information is printed on a label attached to the chassis.

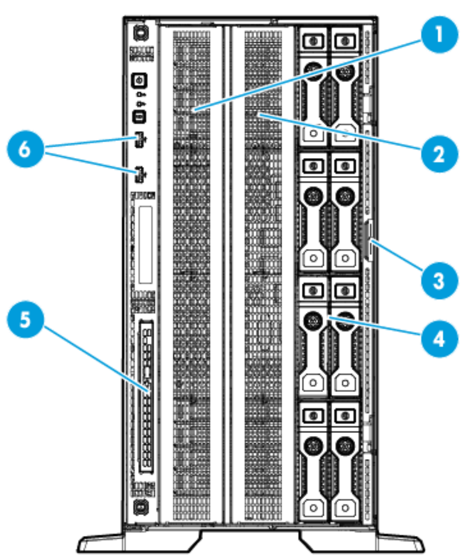
- SFF model (rack orientation)



Item	Description
1	SFF SAS/SATA drives
2	Serial number pull tab*
3	Drive cage bay
4	Optical drive bay
5	Media/drive cage bays
6	System Insight Display bay
7	USB 2.0 connectors (2)

*The serial number pull tab is double-sided. One side shows the server serial number, and the reverse side shows the default iLO account information and the QR code. The same information is printed on a label attached to the chassis.

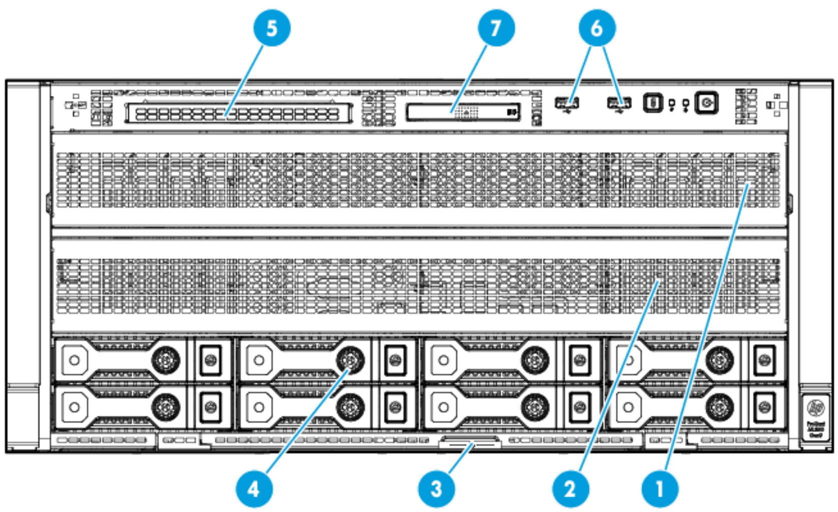
- LFF model (tower orientation)



Item	Description
1	Media/drive cage bay
2	Drive cage bay
3	Serial number pull tab*
4	LFF SAS/SATA drives
5	Optical drive bay
6	USB 2.0 connectors (2)

*The serial number pull tab is double-sided. One side shows the server serial number, and the reverse side shows the default iLO account information and the QR code. The same information is printed on a label attached to the chassis.

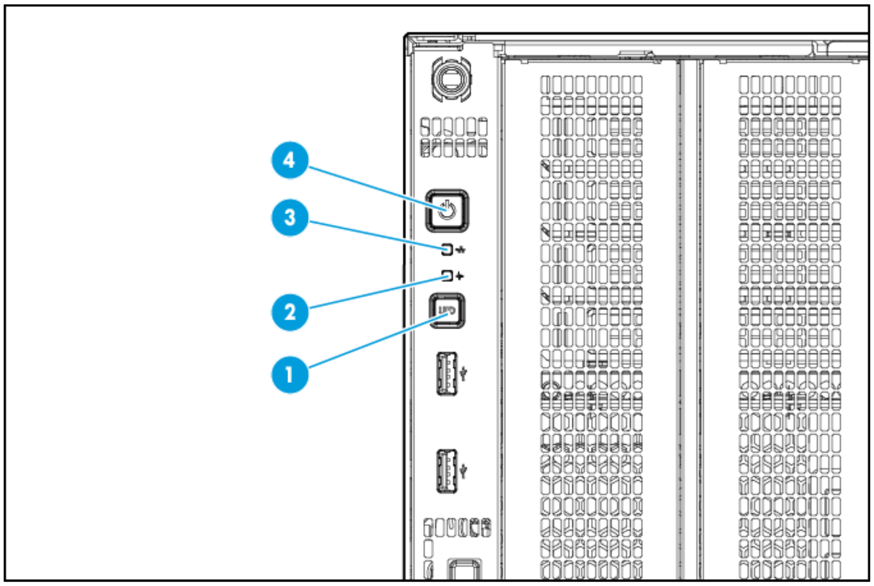
- LFF model (rack orientation)



Item	Description
1	Media/drive cage bay
2	Drive cage bay
3	Serial number pull tab*
4	LFF SAS/SATA drives
5	Optical drive bay
6	USB 2.0 connectors (2)
7	System Insight Display bay

*The serial number pull tab is double-sided. One side shows the server serial number, and the reverse side shows the default iLO account information and the QR code. The same information is printed on a label attached to the chassis.

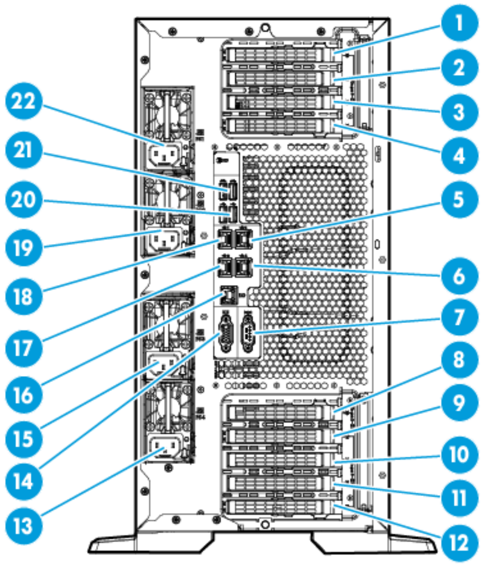
Front panel LEDs and buttons



Item	Description	Status
1	UID button/LED	Solid blue = Activated Flashing blue: • 1 Hz/cycle per sec = Remote management or firmware upgrade in progress • 4 Hz/cycle per sec = iLO manual reboot sequence initiated • 8 Hz/cycle per sec = iLO manual reboot sequence in progress Off = Deactivated
2	Health LED	Solid green = Normal Flashing green (1 Hz/cycle per sec) = iLO is rebooting Flashing amber = System degraded[1] Flashing red (1 Hz/cycle per sec) = System critical[1]
3	NIC status LED	Solid green = Link to network Flashing green (1 Hz/cycle per sec) = Network active Off = No network activity
4	Power On/Standby button and system power LED	Solid green = System on Flashing green (1 Hz/cycle per sec) = Performing power on sequence Solid amber = System in standby Off = No power present [2]

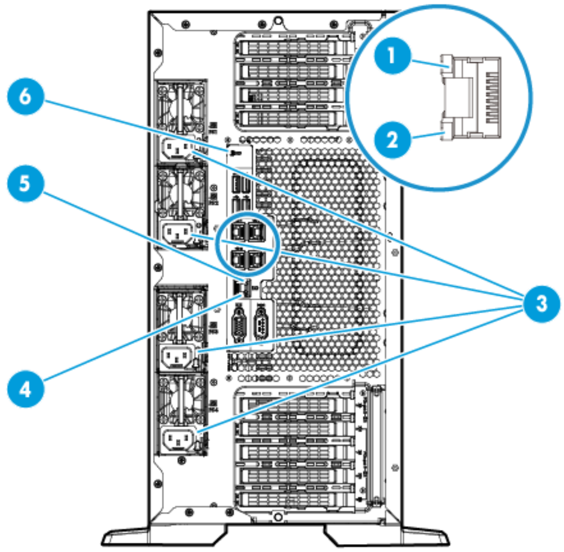
[1]To identify components in a degraded or critical state, see the Systems Insight Display LEDs, check iLO/BIOS logs, and reference the server troubleshooting guide.
[2]Facility power is not present, power cord is not attached, no power supplies are installed, power supply failure has occurred, or the power button cable is disconnected.

Rear panel components



Item	Description
1	Slot 1 PCIe3 x16 (8, 4, 1) (for processor 1)
2	Slot 2 PCIe3 x8 (4, 1) (for processor 1)
3	Slot 3 PCIe3 x16 (16, 8, 4, 1) (for processor 1)
4	Slot 4 PCIe3 x8 (4, 1) (for processor 1)
5	NIC connector 2
6	NIC connector 4
7	Serial connector
8	Slot 5 PCIe2 x8 (4, 1) (for processor 2)
9	Slot 6 PCIe3 x16 (16, 8, 4, 1) (for processor 2)
10	Slot 7 PCIe3 x8 (4, 1) (for processor 2)
11	Slot 8 PCIe3 x16 (16, 8, 4, 1) (for processor 2)
12	Slot 9 PCIe3 x8 (4, 1) (for processor 2)
13	Power supply 4
14	Video connector
15	Power supply 3
16	iLO connector
17	NIC connector 3
18	NIC connector 1
19	Power supply 2
20	USB 2.0 connectors (2)
21	USB 3.0 connectors (2)
22	Power supply 1

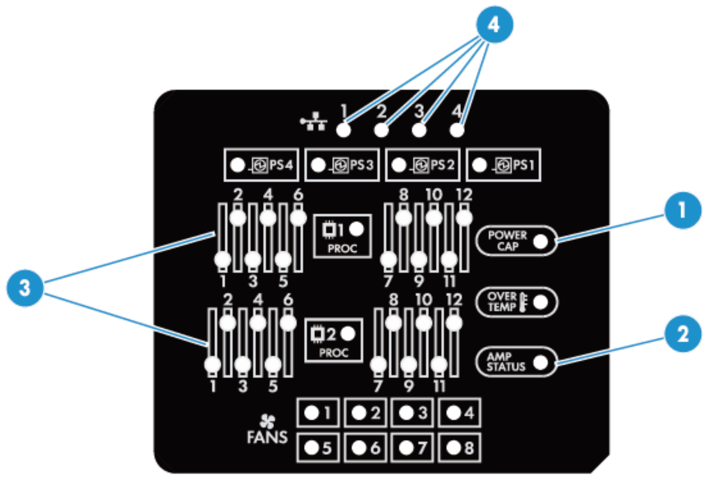
Rear panel LEDs



Item	Description	Status
1	NIC activity LED	Green or flashing green = Network activity Off = No network activity
2	NIC link LED	Green = Linked to network Off = No network connection
3	Power supply LED	Solid green = Normal Off = One or more of the following conditions exists: • Power is unavailable. • Power supply failed. • Power supply is in standby mode. • Power supply error.
4	iLO link LED	Green = Linked to network Off = No network connection
5	iLO activity LED	Green or flashing green = Network activity Off = No network activity
6	UID LED	Solid blue = Activated Flashing blue: • 1 Hz/cycle per sec = Remote management or firmware upgrade in progress • 4 Hz/cycle per sec = iLO manual reboot sequence initiated • 8 Hz/cycle per sec = iLO manual reboot sequence in progress Off = Deactivated

System Insight Display LEDs

The HP SID LEDs represent the system board layout. To view the LEDs, see "Using the Systems Insight Display (on page 29)."



Item	Description	Status
1	Power cap	Green = Power cap applied Amber = Power not available Off = Standby on not configured
2	AMP Status	Green = AMP mode enabled Amber = Failover or invalid configuration Off = AMP mode disabled
3	DIMM LEDs	Amber = DIMM error Off = Normal
4	NIC LED	Solid green = Link to network Flashing green (1 Hz/cycle per sec) = Network active Off = No network activity
All other LEDs		Off = Normal On = Failed

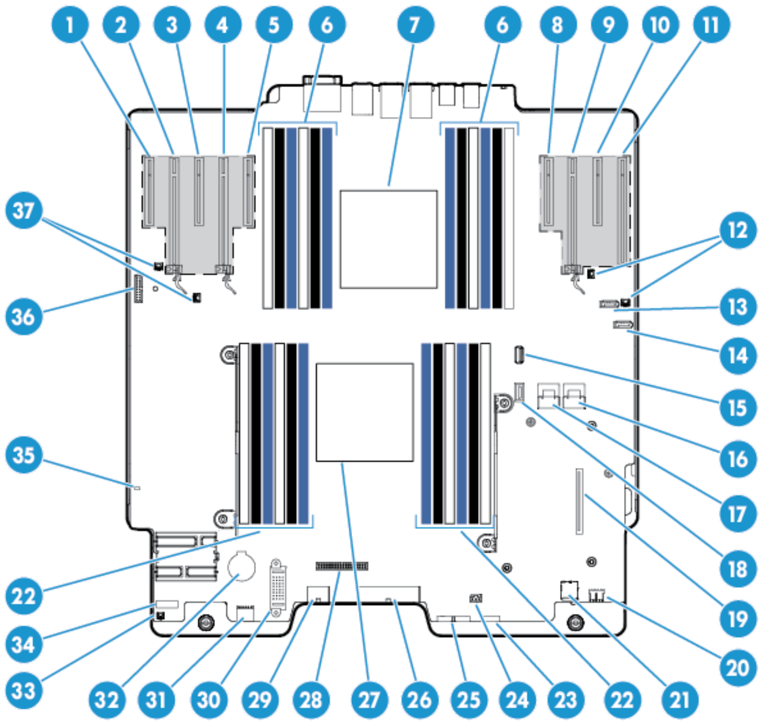
System Insight Display LED combinations

When the health LED on the front panel illuminates either amber or red, the server is experiencing a health event. Combinations of illuminated SID LEDs, the system power LED, and the health LED indicate system status.

Systems Insight Display LED and color	Health LED	System power LED	Status
Processor (amber)	Red	Amber	One or more of the following conditions might exist: • Processor in socket *X* has failed. • Processor *X* is not installed in the socket. • Processor *X* is unsupported. • ROM detects a failed processor during POST.
Processor (amber)	Amber	Green	Processor in socket *X* is in a pre-failure condition.
DIMM (amber)	Red	Green	One or more DIMMs have failed.
DIMM (amber)	Amber	Green	DIMM in slot *X* is in a pre-failure condition.
Overtemperature (amber)	Amber	Green	The Health Driver has detected a cautionary temperature level.
Overtemperature (amber)	Red	Amber	The server has detected a hardware critical temperature level.
Fan (amber)	Amber	Green	Fan has failed or is missing, but still meets the minimum fan requirements.
Fan (amber)	Red	Green	Fan has failed or is missing and no longer meets the minimum fan requirements.
Power supply (amber)	Red	Amber	• Only one power supply installed and in standby mode. • Power supply fault. • System board fault.
Power supply (amber)	Amber	Green	• Redundant power supply is installed and only one power supply is functional. • AC power cord is not plugged into redundant power supply. • Redundant power supply fault. • Power supply mismatch at POST or through hot-plug addition.
Power cap (off)	—	Amber	Standby
Power cap (green)	—	Flashing green	Waiting for power.
Power cap (flashing amber)	—	Amber	Power cap has been exceeded.
Power cap (green)	—	Green	Power is available.

IMPORTANT: If more than one DIMM slot LED is illuminated, further troubleshooting is required. Test each bank of DIMMs by removing all other DIMMs. Isolate the failed DIMM by replacing each DIMM in a bank with a known working DIMM.

System board components

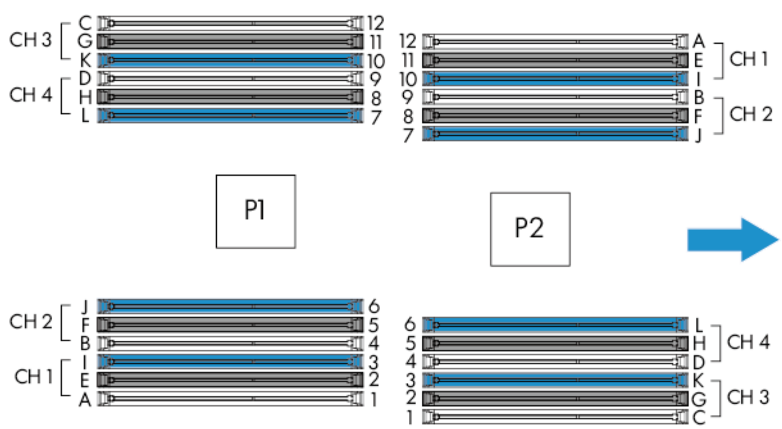


Item	Description
1	Slot9 PCIe3 x8 (4,1) (for processor 2)
2	Slot8 PCIe3 x16 (16,8,4,1) (for processor 2)
3	Slot7 PCIe3 x8 (4,1) (for processor 2)
4	Slot6 PCIe3 x16 (16,8,4,1) (for processor 2)
5	Slot5 PCIe2 x8 (4,1) (for processor 2)
6	DIMM slots for processor 1
7	Processor 1
8	Slot4 PCIe3 x8 (4,1) (for processor 1)
9	Slot3 PCIe3 x16 (16,8,4,1) (for processor 1)
10	Slot2 PCIe3 x8 (4,1) (for processor 1)
11	Slot1 PCIe3 x16 (8,4,1) (for processor 1)
12	Storage backup power connector
13	SATA port 4
14	SATA port 5
15	Internal USB 3.0 connector
16	x4 SATA port 2
17	x4 SATA port 1
18	Internal USB 2.0 connector
19	Flexible Smart Array Controller connector
20	Internal USB tape drive connector
21	Micro SD card slot

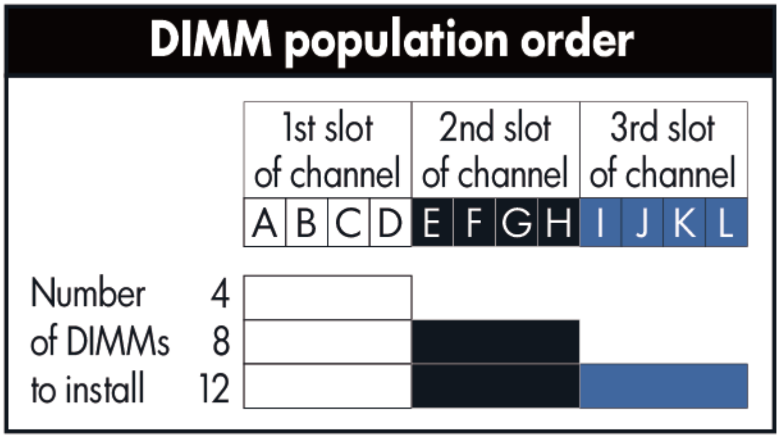
Item	Description
22	DIMM slots for Processor 2
23	HP System Insight Display connector
24	External thermal cable connector
25	Front I/O connector
26	24-pin power supply connector
27	Processor 2
28	RPS connector
29	8-pin power supply connector
30	Fans connector
31	HP Smart Storage Battery connector
32	System battery
33	Discovery service connector
34	System maintenance switch
35	NMI header
36	TPM connector
37	Storage backup power connector

DIMM slots

DIMM slots are numbered sequentially (1 through 12) for each processor. The supported AMP modes use the letter assignments for population guidelines.



NOTE: The arrow indicates the front of the server.



System maintenanace switch

Position	Default	Function
S1	Off	Off = iLO security is enabled. On = iLO security is disabled.
S2	Off	Off = System configuration can be changed. On = System configuration is locked.
S5	Off	Off = Power-on password is enabled. On = Power-on password is disabled.
S6	Off	Off = Normal. On = ROM reads system configuration as invalid.
S7	Off	Off = Set default boot mode to UEFI. On = Set default boot mode to legacy.
S10	Off	Off = Tower configuration. On = Rack configuration.
S3, S4, S8, S9, S11, S12	—	Reserved

To access the redundant ROM, set S1, S5, and S6 to on.

When the system maintenance switch position 6 is set to the On position, the system is prepared to erase all system configuration settings from both CMOS and NVRAM.

CAUTION: Clearing CMOS and/or NVRAM deletes configuration information. Be sure to properly configure the server or data loss could occur.

IMPORTANT: Before using the S7 switch to change to Legacy BIOS Boot Mode, be sure the HP Dynamic Smart Array B140i Controller is disabled. Do not use the B140i controller when the server is in Legacy BIOS Boot Mode.

NMI functionality

An NMI crash dump creates a crash dump log before resetting a system which is not responding.

Crash dump log analysis is an essential part of diagnosing reliability problems, such as failures of operating systems, device drivers, and applications. Many crashes freeze a system, and the only available action for administrators is to restart the system. Resetting the system erases any information which could support problem analysis, but the NMI feature preserves that information by performing a memory dump before a system reset.

To force the system to invoke the NMI handler and generate a crash dump log, do one of the following:

- Use the iLO Virtual NMI feature.
- Short the NMI header ("System board components" on page 79).

For more information, see the HP website (http://www.hp.com/support/NMI).

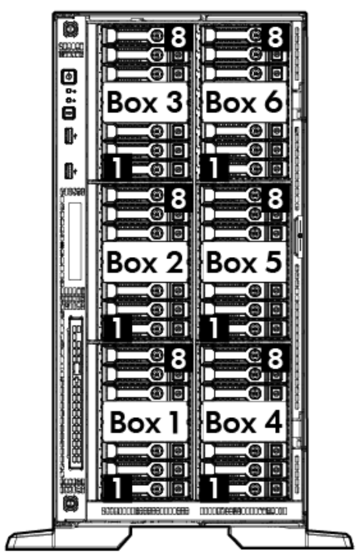
Device numbering

With optional drive cages installed, the server supports up to 48 SFF drives or up to 24 LFF drives. The server does not support mixing SFF and LFF drives.

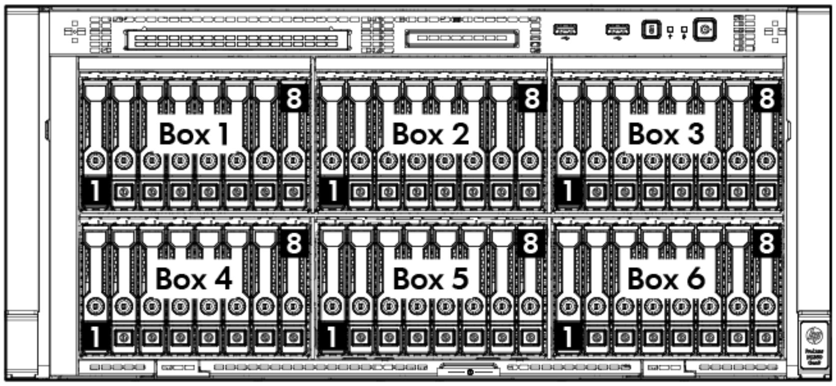
HP recommends that you populate drive bays starting with the lowest SAS or SATA device number. Drives are numbered from left to right in each component box.

SFF drives

- Tower orientation

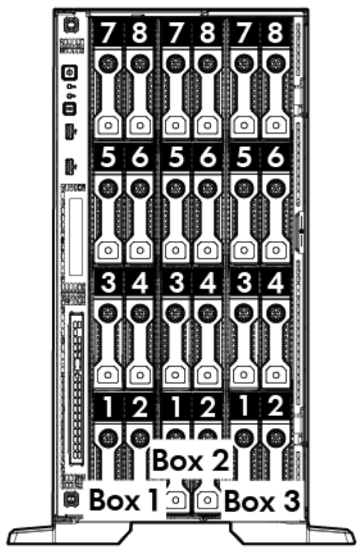


- Rack orientation

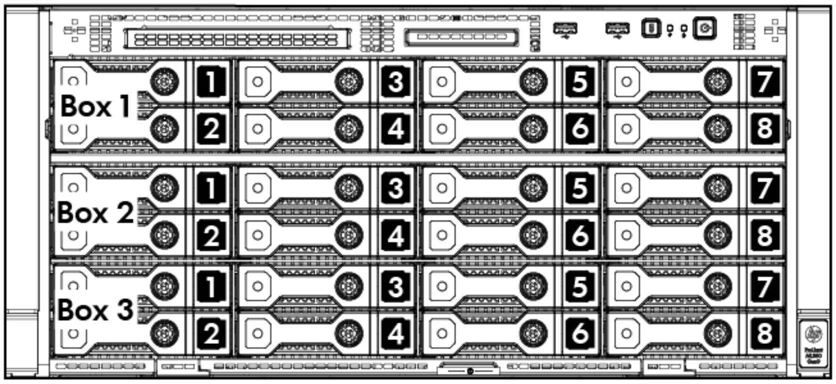


LFF drives

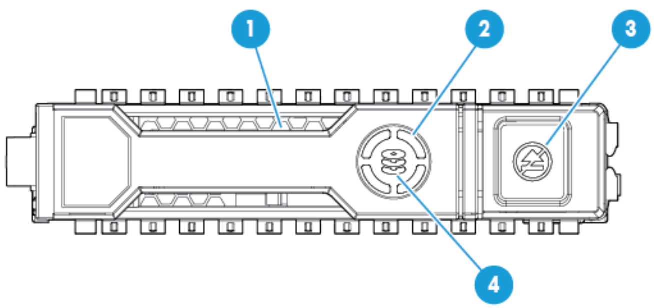
- Tower orientation



- Rack orientation



Hot-plug drive LED definitions



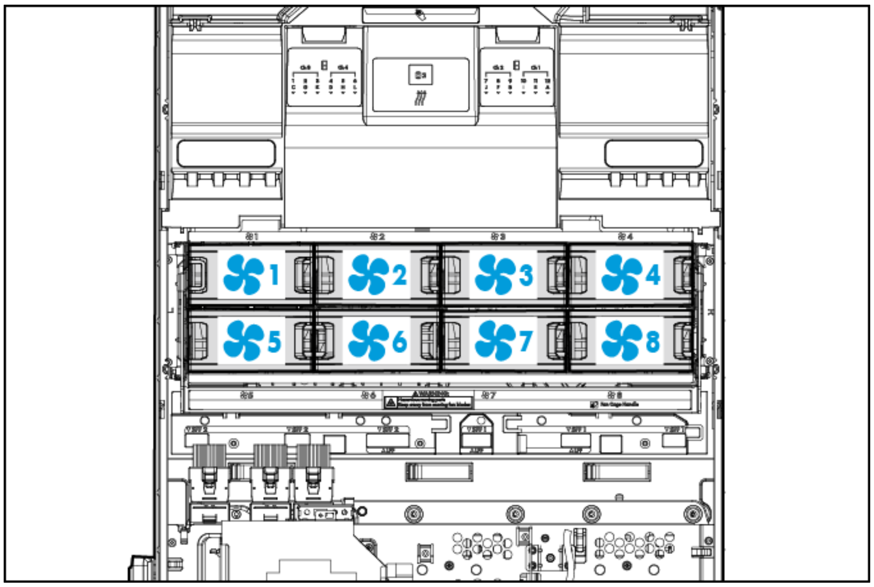
Item	LED	Status	Definition
1	Locate	Solid blue	The drive is being identified by a host application.
		Flashing blue	The drive carrier firmware is being updated or requires an update.
2	Activity ring	Rotating green	Drive activity
		Off	No drive activity
3	Do not remove	Solid white	Do not remove the drive. Removing the drive causes one or more of the logical drives to fail.
		Off	Removing the drive does not cause a logical drive to fail.
4	Drive status	Solid green	The drive is a member of one or more logical drives.
		Flashing green	The drive is rebuilding or performing a RAID migration, strip size migration, capacity expansion, or logical drive extension, or is erasing.
		Flashing amber/green	The drive is a member of one or more logical drives and predicts the drive will fail.
		Flashing amber	The drive is not configured and predicts the drive will fail.
		Solid amber	The drive has failed.
		Off	The drive is not configured by a RAID controller.

Hot-plug fans

The server supports redundant hot-plug fans to provide proper airflow to the system when a primary fan fails.

CAUTION: To avoid damage to server components, a fan or fan blank must always be installed in fan bay 1.

Fan numbering



Fan population rules

The following table lists the valid fan configurations.

Configuration	Fan 1	Fan 2	Fan 3	Fan 4	Fan 5	Fan 6	Fan 7	Fan 8
Single processor – Non -Redundant	Fan blank	Fan	Fan	Fan	empty	empty	empty	empty
Dual processor – Non -Redundant	Fan	Fan	Fan	Fan	empty	empty	empty	empty
Single processor - Redundant	Fan blank	Fan	Fan	Fan	empty	Fan	Fan	Fan
Dual processor - Redundant	Fan	Fan	Fan	Fan	Fan	Fan	Fan	Fan

For a single-processor redundant configuration, six fans and one blanks is required in specific fan bays for redundancy. A fan failure causes a loss of redundancy. A second fan failure causes an orderly shutdown of the server.

Installing more than the required number of fans in a single-processor configuration is not a supported configuration.

For a dual-processor redundant configuration, all fans are required for redundancy. A fan failure causes a loss of redundancy. A second fan failure causes an orderly shutdown of the server.

The server supports variable fan speeds. The fans operate at minimum speed until a temperature change requires a fan speed increase to cool the server. The server shuts down during the following temperature-related scenarios:

1. At POST and in the OS, HP iLO performs an orderly shutdown if a cautionary temperature level is detected. If the server hardware detects a critical temperature level before an orderly shutdown occurs, the server performs an immediate shutdown.
2. When the Thermal Shutdown feature is disabled in RBSU, HP iLO does not perform an orderly shutdown when a cautionary temperature level is detected. Disabling this feature does not disable the server hardware from performing an immediate shutdown when a critical temperature level is detected.

CAUTION: A thermal event can damage server components when the Thermal Shutdown feature is disabled in RBSU.

Specifications

Environmental specifications

Specification	Value
Temperature range*	—
Operating	10°C to 35°C (50°F to 95°F)
Nonoperating	-30°C to 60°C (-22°F to 140°F)
Relative humidity (noncondensing)	—
Operating	Minimum to be the higher (more moisture) of -12°C (10.4°F) dew point or 8% relative humidity Maximum to be 24°C (75.2°F) dew point or 90% relative humidity
Nonoperating	5% to 95% 38.7°C (101.7°F), maximum wet bulb temperature

* All temperature ratings shown are for sea level. An altitude derating of 1.0°C per 304.8 m (1.8°F per 1000 ft) to 3048 m (10,000 ft) is applicable. No direct sunlight allowed. Maximum rate of change is 20°C per hour (36°F per hour). The upper limit and rate of change might be limited by the type and number of options installed.

For certain approved hardware configurations, the supported system inlet temperature range is extended:

- 5°C to 10°C (41°F to 50°F) and 35°C to 40°C (95°F to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2953 ft) to a maximum of 3048 m (10,000 ft).
- 40°C to 45°C (104°F to 113°F) at sea level with an altitude derating of 1.0°C per every 125 m (1.8°F per every 410 ft) above 900 m (2953 ft) to a maximum of 3048 m (10,000 ft).

The approved hardware configurations for this system are listed on the HP website (http://www.hp.com/servers/ASHRAE).

Server specifications

Specification	Value
Dimensions	
Rack model	—
Height	21.8 cm (8.58 in)
Depth	74.6cm
Width	44.5 cm (17.51 in)
Tower model	—
Height	46.4 cm (18.27 in)

Specification	Value
Depth	76.9 cm (30.28 in)
Width	21.9 cm (8.62 in)
Weight	
Rack model	—
Maximum	51 kg (112.4 lbs)
Minimum	26 kg (57.3 lbs)
Tower model	—
Maximum	55 kg (121.30 lbs)
Minimum	30 kg (66.14 lbs)

Power supply specifications

Depending on installed options, the server is configured with one of the following power supplies:

- HP 500W Flex Slot Platinum Hot Plug Power Supply
- HP 800W Flex Slot Platinum Hot Plug Power Supply

For detailed power supply specifications, see the QuickSpecs on the HP website (http://h18000.www1.hp.com/products/quickspecs/14209_div/14209_div.html).

HP 500W Flex Slot Platinum Hot Plug Power Supply

Specification	Value
Input requirements	
Rated input voltage	100 to 240 VAC 240 VDC for China only
Rated input frequency	50 Hz to 60 Hz
Rated input current	5.8 A at 100 VAC 2.8 A at 240 VAC 2.4 A at 240 VDC
Maximum rated input power	580 W at 100 VAC 560 W at 200 VAC
BTUs per hour	1979 at 100 VAC 1911 at 200 VAC
Power supply output	
Rated steady-state power	500 W at 100 VAC to 120 VAC input 500 W at 200 VAC to 240 VAC input
Maximum peak power	500 W at 100 VAC to 120 VAC input 500 W at 200 VAC to 240 VAC input

HP 800W Flex Slot Platinum Hot Plug Power Supply

Specification	Value
Input requirements	
Rated input voltage	100 to 240 VAC 240 VDC for China only
Rated input frequency	50 Hz to 60 Hz
Rated input current	9.4 A at 100 VAC 4.5 A at 240 VAC 3.8 A at 240 VDC
Maximum rated input power	940 W at 100 VAC 900 W at 200 VAC
BTUs per hour	3207 at 100 VAC 3071 at 200 VAC
Power supply output	
Rated steady-state power	800 W at 100 VAC to 120 VAC input 800 W at 200 VAC to 240 VAC input
Maximum peak power	800 W at 100 VAC to 120 VAC input 800 W at 200 VAC to 240 VAC input

Support and other resources

Before you contact HP

Be sure to have the following information available before you call HP:

- Active Health System log (HP ProLiant Gen8 or later products)

  Download and have available an Active Health System log for 7 days before the failure was detected. For more information, see the *HP iLO 4 User Guide* or *HP Intelligent Provisioning User Guide* on the HP website (http://www.hp.com/go/ilo/docs).
- Onboard Administrator SHOW ALL report (for HP BladeSystem products only)

  For more information on obtaining the Onboard Administrator SHOW ALL report, see the HP website (http://www.hp.com/go/OAlog).
- Technical support registration number (if applicable)
- Product serial number
- Product model name and number
- Product identification number
- Applicable error messages
- Add-on boards or hardware
- Third-party hardware or software
- Operating system type and revision level

HP contact information

For United States and worldwide contact information, see the Contact HP website (http://www.hp.com/go/assistance).

In the United States:

- To contact HP by phone, call 1-800-334-5144. For continuous quality improvement, calls may be recorded or monitored.
- If you have purchased a Care Pack (service upgrade), see the Support & Drivers website (http://www8.hp.com/us/en/support-drivers.html). If the problem cannot be resolved at the website, call 1-800-633-3600. For more information about Care Packs, see the HP website (http://pro-aq-sama.houston.hp.com/services/cache/10950-0-0-225-121.html).

Customer Self Repair

HP products are designed with many Customer Self Repair (CSR) parts to minimize repair time and allow for greater flexibility in performing defective parts replacement. If during the diagnosis period HP (or HP service

providers or service partners) identifies that the repair can be accomplished by the use of a CSR part, HP will ship that part directly to you for replacement. There are two categories of CSR parts:

- **Mandatory**—Parts for which customer self repair is mandatory. If you request HP to replace these parts, you will be charged for the travel and labor costs of this service.
- **Optional**—Parts for which customer self repair is optional. These parts are also designed for customer self repair. If, however, you require that HP replace them for you, there may or may not be additional charges, depending on the type of warranty service designated for your product.

NOTE: Some HP parts are not designed for customer self repair. In order to satisfy the customer warranty, HP requires that an authorized service provider replace the part. These parts are identified as "No" in the Illustrated Parts Catalog.

Based on availability and where geography permits, CSR parts will be shipped for next business day delivery. Same day or four-hour delivery may be offered at an additional charge where geography permits. If assistance is required, you can call the HP Technical Support Center and a technician will help you over the telephone. HP specifies in the materials shipped with a replacement CSR part whether a defective part must be returned to HP. In cases where it is required to return the defective part to HP, you must ship the defective part back to HP within a defined period of time, normally five (5) business days. The defective part must be returned with the associated documentation in the provided shipping material. Failure to return the defective part may result in HP billing you for the replacement. With a customer self repair, HP will pay all shipping and part return costs and determine the courier/carrier to be used.

For more information about HP's Customer Self Repair program, contact your local service provider. For the North American program, refer to the HP website (http://www.hp.com/go/selfrepair).

Réparation par le client (CSR)

Les produits HP comportent de nombreuses pièces CSR (Customer Self Repair = réparation par le client) afin de minimiser les délais de réparation et faciliter le remplacement des pièces défectueuses. Si pendant la période de diagnostic, HP (ou ses partenaires ou mainteneurs agréés) détermine que la réparation peut être effectuée à l'aide d'une pièce CSR, HP vous l'envoie directement. Il existe deux catégories de pièces CSR:

Obligatoire - Pièces pour lesquelles la réparation par le client est obligatoire. Si vous demandez à HP de remplacer ces pièces, les coûts de déplacement et main d'œuvre du service vous seront facturés.

Facultatif - Pièces pour lesquelles la réparation par le client est facultative. Ces pièces sont également conçues pour permettre au client d'effectuer lui-même la réparation. Toutefois, si vous demandez à HP de remplacer ces pièces, l'intervention peut ou non vous être facturée, selon le type de garantie applicable à votre produit.

REMARQUE: Certaines pièces HP ne sont pas conçues pour permettre au client d'effectuer lui-même la réparation. Pour que la garantie puisse s'appliquer, HP exige que le remplacement de la pièce soit effectué par un Mainteneur Agréé. Ces pièces sont identifiées par la mention "Non" dans le Catalogue illustré.

Les pièces CSR sont livrées le jour ouvré suivant, dans la limite des stocks disponibles et selon votre situation géographique. Si votre situation géographique le permet et que vous demandez une livraison le jour même ou dans les 4 heures, celle-ci vous sera facturée. Pour bénéficier d'une assistance téléphonique, appelez le Centre d'assistance technique HP. Dans les documents envoyés avec la pièce de rechange CSR, HP précise s'il est nécessaire de lui retourner la pièce défectueuse. Si c'est le cas, vous devez le faire dans le délai indiqué, généralement cinq (5) jours ouvrés. La pièce et sa documentation doivent être retournées dans l'emballage fourni. Si vous ne retournez pas la pièce défectueuse, HP se réserve le droit de vous facturer les coûts de remplacement. Dans le cas d'une pièce CSR, HP supporte l'ensemble des frais d'expédition et de retour, et détermine la société de courses ou le transporteur à utiliser.

Pour plus d'informations sur le programme CSR de HP, contactez votre Mainteneur Agrée local. Pour plus d'informations sur ce programme en Amérique du Nord, consultez le site Web HP (http://www.hp.com/go/selfrepair).

Riparazione da parte del cliente

Per abbreviare i tempi di riparazione e garantire una maggiore flessibilità nella sostituzione di parti difettose, i prodotti HP sono realizzati con numerosi componenti che possono essere riparati direttamente dal cliente (CSR, Customer Self Repair). Se in fase di diagnostica HP (o un centro di servizi o di assistenza HP) identifica il guasto come riparabile mediante un ricambio CSR, HP lo spedirà direttamente al cliente per la sostituzione. Vi sono due categorie di parti CSR:

Obbligatorie – Parti che devono essere necessariamente riparate dal cliente. Se il cliente ne affida la riparazione ad HP, deve sostenere le spese di spedizione e di manodopera per il servizio.

Opzionali – Parti la cui riparazione da parte del cliente è facoltativa. Si tratta comunque di componenti progettati per questo scopo. Se tuttavia il cliente ne richiede la sostituzione ad HP, potrebbe dover sostenere spese addizionali a seconda del tipo di garanzia previsto per il prodotto.

NOTA: alcuni componenti HP non sono progettati per la riparazione da parte del cliente. Per rispettare la garanzia, HP richiede che queste parti siano sostituite da un centro di assistenza autorizzato. Tali parti sono identificate da un "No" nel Catalogo illustrato dei componenti.

In base alla disponibilità e alla località geografica, le parti CSR vengono spedite con consegna entro il giorno lavorativo seguente. La consegna nel giorno stesso o entro quattro ore è offerta con un supplemento di costo solo in alcune zone. In caso di necessità si può richiedere l'assistenza telefonica di un addetto del centro di supporto tecnico HP. Nel materiale fornito con una parte di ricambio CSR, HP specifica se il cliente deve restituire dei componenti. Qualora sia richiesta la resa ad HP del componente difettoso, lo si deve spedire ad HP entro un determinato periodo di tempo, generalmente cinque (5) giorni lavorativi. Il componente difettoso deve essere restituito con la documentazione associata nell'imballo di spedizione fornito. La mancata restituzione del componente può comportare la fatturazione del ricambio da parte di HP. Nel caso di riparazione da parte del cliente, HP sostiene tutte le spese di spedizione e resa e sceglie il corriere/vettore da utilizzare.

Per ulteriori informazioni sul programma CSR di HP contattare il centro di assistenza di zona. Per il programma in Nord America fare riferimento al sito Web HP (http://www.hp.com/go/selfrepair).

Customer Self Repair

HP Produkte enthalten viele CSR-Teile (Customer Self Repair), um Reparaturzeiten zu minimieren und höhere Flexibilität beim Austausch defekter Bauteile zu ermöglichen. Wenn HP (oder ein HP Servicepartner) bei der Diagnose feststellt, dass das Produkt mithilfe eines CSR-Teils repariert werden kann, sendet Ihnen HP dieses Bauteil zum Austausch direkt zu. CSR-Teile werden in zwei Kategorien unterteilt:

Zwingend – Teile, für die das Customer Self Repair-Verfahren zwingend vorgegeben ist. Wenn Sie den Austausch dieser Teile von HP vornehmen lassen, werden Ihnen die Anfahrt- und Arbeitskosten für diesen Service berechnet.

Optional – Teile, für die das Customer Self Repair-Verfahren optional ist. Diese Teile sind auch für Customer Self Repair ausgelegt. Wenn Sie jedoch den Austausch dieser Teile von HP vornehmen lassen möchten, können bei diesem Service je nach den für Ihr Produkt vorgesehenen Garantiebedingungen zusätzliche Kosten anfallen.

HINWEIS: Einige Teile sind nicht für Customer Self Repair ausgelegt. Um den Garantieanspruch des Kunden zu erfüllen, muss das Teil von einem HP Servicepartner ersetzt werden. Im illustrierten Teilekatalog sind diese Teile mit „No“ bzw. „Nein“ gekennzeichnet.

CSR-Teile werden abhängig von der Verfügbarkeit und vom Lieferziel am folgenden Geschäftstag geliefert. Für bestimmte Standorte ist eine Lieferung am selben Tag oder innerhalb von vier Stunden gegen einen Aufpreis verfügbar. Wenn Sie Hilfe benötigen, können Sie das HP technische Support Center anrufen und sich von einem Mitarbeiter per Telefon helfen lassen. Den Materialien, die mit einem CSR-Ersatzteil geliefert werden, können Sie entnehmen, ob das defekte Teil an HP zurückgeschickt werden muss. Wenn es erforderlich ist, das defekte Teil an HP zurückzuschicken, müssen Sie dies innerhalb eines vorgegebenen Zeitraums tun, in der Regel innerhalb von fünf (5) Geschäftstagen. Das defekte Teil muss mit der zugehörigen Dokumentation in der Verpackung zurückgeschickt werden, die im Lieferumfang enthalten ist. Wenn Sie das defekte Teil nicht zurückschicken, kann HP Ihnen das Ersatzteil in Rechnung stellen. Im Falle von Customer Self Repair kommt HP für alle Kosten für die Lieferung und Rücksendung auf und bestimmt den Kurier-/Frachtdienst.

Weitere Informationen über das HP Customer Self Repair Programm erhalten Sie von Ihrem Servicepartner vor Ort. Informationen über das CSR-Programm in Nordamerika finden Sie auf der HP Website unter (http://www.hp.com/go/selfrepair).

Reparaciones del propio cliente

Los productos de HP incluyen muchos componentes que el propio usuario puede reemplazar (*Customer Self Repair*, CSR) para minimizar el tiempo de reparación y ofrecer una mayor flexibilidad a la hora de realizar sustituciones de componentes defectuosos. Si, durante la fase de diagnóstico, HP (o los proveedores o socios de servicio de HP) identifica que una reparación puede llevarse a cabo mediante el uso de un componente CSR, HP le enviará dicho componente directamente para que realice su sustitución. Los componentes CSR se clasifican en dos categorías:

- **Obligatorio:** componentes para los que la reparación por parte del usuario es obligatoria. Si solicita a HP que realice la sustitución de estos componentes, tendrá que hacerse cargo de los gastos de desplazamiento y de mano de obra de dicho servicio.
- **Opcional:** componentes para los que la reparación por parte del usuario es opcional. Estos componentes también están diseñados para que puedan ser reparados por el usuario. Sin embargo, si precisa que HP realice su sustitución, puede o no conllevar costes adicionales, dependiendo del tipo de servicio de garantía correspondiente al producto.

NOTA: Algunos componentes no están diseñados para que puedan ser reparados por el usuario. Para que el usuario haga valer su garantía, HP pone como condición que un proveedor de servicios autorizado realice la sustitución de estos componentes. Dichos componentes se identifican con la palabra "No" en el catálogo ilustrado de componentes.

Según la disponibilidad y la situación geográfica, los componentes CSR se enviarán para que lleguen a su destino al siguiente día laborable. Si la situación geográfica lo permite, se puede solicitar la entrega en el mismo día o en cuatro horas con un coste adicional. Si precisa asistencia técnica, puede llamar al Centro de asistencia técnica de HP y recibirá ayuda telefónica por parte de un técnico. Con el envío de materiales para la sustitución de componentes CSR, HP especificará si los componentes defectuosos deberán devolverse a HP. En aquellos casos en los que sea necesario devolver algún componente a HP, deberá hacerlo en el periodo de tiempo especificado, normalmente cinco días laborables. Los componentes defectuosos deberán devolverse con toda la documentación relacionada y con el embalaje de envío. Si no enviara el componente defectuoso requerido, HP podrá cobrarle por el de sustitución. En el caso de todas

sustituciones que lleve a cabo el cliente, HP se hará cargo de todos los gastos de envío y devolución de componentes y escogerá la empresa de transporte que se utilice para dicho servicio.

Para obtener más información acerca del programa de Reparaciones del propio cliente de HP, póngase en contacto con su proveedor de servicios local. Si está interesado en el programa para Norteamérica, visite la página web de HP siguiente (http://www.hp.com/go/selfrepair).

Customer Self Repair

Veel onderdelen in HP producten zijn door de klant zelf te repareren, waardoor de reparatieduur tot een minimum beperkt kan blijven en de flexibiliteit in het vervangen van defecte onderdelen groter is. Deze onderdelen worden CSR-onderdelen (Customer Self Repair) genoemd. Als HP (of een HP Service Partner) bij de diagnose vaststelt dat de reparatie kan worden uitgevoerd met een CSR-onderdeel, verzendt HP dat onderdeel rechtstreeks naar u, zodat u het defecte onderdeel daarmee kunt vervangen. Er zijn twee categorieën CSR-onderdelen:

Verplicht: Onderdelen waarvoor reparatie door de klant verplicht is. Als u HP verzoekt deze onderdelen voor u te vervangen, worden u voor deze service reiskosten en arbeidsloon in rekening gebracht.

Optioneel: Onderdelen waarvoor reparatie door de klant optioneel is. Ook deze onderdelen zijn ontworpen voor reparatie door de klant. Als u echter HP verzoekt deze onderdelen voor u te vervangen, kunnen daarvoor extra kosten in rekening worden gebracht, afhankelijk van het type garantieservice voor het product.

OPMERKING: Sommige HP onderdelen zijn niet ontwikkeld voor reparatie door de klant. In verband met de garantievoorwaarden moet het onderdeel door een geautoriseerde Service Partner worden vervangen. Deze onderdelen worden in de geïllustreerde onderdelencatalogus aangemerkt met "Nee".

Afhankelijk van de leverbaarheid en de locatie worden CSR-onderdelen verzonden voor levering op de eerstvolgende werkdag. Levering op dezelfde dag of binnen vier uur kan tegen meerkosten worden aangeboden, indien dit mogelijk is gezien de locatie. Indien assistentie gewenst is, belt u een HP Service Partner om via de telefoon technische ondersteuning te ontvangen. HP vermeldt in de documentatie bij het vervangende CSR-onderdeel of het defecte onderdeel aan HP moet worden geretourneerd. Als het defecte onderdeel aan HP moet worden teruggezonden, moet u het defecte onderdeel binnen een bepaalde periode, gewoonlijk vijf (5) werkdagen, retourneren aan HP. Het defecte onderdeel moet met de bijbehorende documentatie worden geretourneerd in het meegeleverde verpakkingsmateriaal. Als u het defecte onderdeel niet terugzendt, kan HP u voor het vervangende onderdeel kosten in rekening brengen. Bij reparatie door de klant betaalt HP alle verzendkosten voor het vervangende en geretourneerde onderdeel en kiest HP zelf welke koerier/transportonderneming hiervoor wordt gebruikt.

Neem contact op met een Service Partner voor meer informatie over het Customer Self Repair programma van HP. Informatie over Service Partners vindt u op de HP website (http://www.hp.com/go/selfrepair).

Reparo feito pelo cliente

Os produtos da HP são projetados com muitas peças para reparo feito pelo cliente (CSR) de modo a minimizar o tempo de reparo e permitir maior flexibilidade na substituição de peças com defeito. Se, durante o período de diagnóstico, a HP (ou fornecedores/parceiros de serviço da HP) concluir que o reparo pode ser efetuado pelo uso de uma peça CSR, a peça de reposição será enviada diretamente ao cliente. Existem duas categorias de peças CSR:

Obrigatória – Peças cujo reparo feito pelo cliente é obrigatório. Se desejar que a HP substitua essas peças, serão cobradas as despesas de transporte e mão-de-obra do serviço.

Opcional – Peças cujo reparo feito pelo cliente é opcional. Essas peças também são projetadas para o reparo feito pelo cliente. No entanto, se desejar que a HP as substitua, pode haver ou não a cobrança de taxa adicional, dependendo do tipo de serviço de garantia destinado ao produto.

OBSERVAÇÃO: Algumas peças da HP não são projetadas para o reparo feito pelo cliente. A fim de cumprir a garantia do cliente, a HP exige que um técnico autorizado substitua a peça. Essas peças estão identificadas com a marca "No" (Não), no catálogo de peças ilustrado.

Conforme a disponibilidade e o local geográfico, as peças CSR serão enviadas no primeiro dia útil após o pedido. Onde as condições geográficas permitirem, a entrega no mesmo dia ou em quatro horas pode ser feita mediante uma taxa adicional. Se precisar de auxílio, entre em contato com o Centro de suporte técnico da HP para que um técnico o ajude por telefone. A HP especifica nos materiais fornecidos com a peça CSR de reposição se a peça com defeito deve ser devolvida à HP. Nos casos em que isso for necessário, é preciso enviar a peça com defeito à HP dentro do período determinado, normalmente cinco (5) dias úteis. A peça com defeito deve ser enviada com a documentação correspondente no material de transporte fornecido. Caso não o faça, a HP poderá cobrar a reposição. Para as peças de reparo feito pelo cliente, a HP paga todas as despesas de transporte e de devolução da peça e determina a transportadora/serviço postal a ser utilizado.

Para obter mais informações sobre o programa de reparo feito pelo cliente da HP, entre em contato com o fornecedor de serviços local. Para o programa norte-americano, visite o site da HP (http://www.hp.com/go/selfrepair).

カスタマーセルフリペア

修理時間を短縮し、故障部品の交換における高い柔軟性を確保するために、HP製品には多数のCSR部品があります。診断の際に、CSR部品を使用すれば修理ができるとHP（HPまたはHP正規保守代理店）が判断した場合、HPはその部品を直接、お客様に発送し、お客様に交換していただきます。CSR部品には以下の2通りがあります。

- **必須 -** カスタマーセルフリペアが必須の部品。当該部品について、もしもお客様がHPに交換作業を依頼される場合には、その修理サービスに関する交通費および人件費がお客様に請求されます。
- **任意 -** カスタマーセルフリペアが任意である部品。この部品もカスタマーセルフリペア用です。当該部品について、もしもお客様がHPに交換作業を依頼される場合には、お買い上げの製品に適用される保証サービス内容の範囲内においては、別途費用を負担していただくことなく保証サービスを受けることができます。

注： HP製品の一部の部品は、カスタマーセルフリペア用ではありません。製品の保証を継続するためには、HPまたはHP正規保守代理店による交換作業が必須となります。部品カタログには、当該部品がカスタマーセルフリペア除外品である旨が記載されています。

部品供給が可能な場合、地域によっては、CSR部品を翌営業日に届くように発送します。また、地域によっては、追加費用を負担いただくことにより同日または4時間以内に届くように発送することも可能な場合があります。サポートが必要なときは、HPの修理受付窓口に電話していただければ、技術者が電話でアドバイスします。交換用のCSR部品または同梱物には、故障部品をHPに返送する必要があるかどうかが表示されています。故障部品をHPに返送する必要がある場合は、指定期限内（通常は5営業日以内）に故障部品をHPに返送してください。故障部品を返送する場合は、届いた時の梱包箱に関連書類とともに入れてください。故障部品を返送しない場合、HPから部品費用が請求されます。カスタマーセルフリペアの際には、HPは送料および部品返送費を全額負担し、使用する宅配便会社や運送会社を指定します。

客户自行维修

HP 产品提供许多客户自行维修 (CSR) 部件，以尽可能缩短维修时间和在更换缺陷部件方面提供更大的灵活性。如果在诊断期间 HP（或 HP 服务提供商或服务合作伙伴）确定可以通过使用 CSR 部件完成维修，HP 将直接把该部件发送给您进行更换。有两类 CSR 部件：

- **强制性的** — 要求客户必须自行维修的部件。如果您请求 HP 更换这些部件，则必须为该服务支付差旅费和人工费用。
- **可选的** — 客户可以选择是否自行维修的部件。这些部件也是为客户自行维修设计的。不过，如果您要求 HP 为您更换这些部件，则根据为您的产品指定的保修服务类型，HP 可能收取或不再收取任何附加费用。

注：某些 HP 部件的设计并未考虑客户自行维修。为了满足客户保修的需要，HP 要求授权服务提供商更换相关部件。这些部件在部件图解目录中标记为“否”。

CSR 部件将在下一个工作日发运（取决于备货情况和允许的地理范围）。在允许的地理范围内，可在当天或四小时内发运，但要收取额外费用。如果需要帮助，您可以致电 HP 技术支持中心，将会有技术人员通过电话为您提供帮助。HP 会在随更换的 CSR 部件发运的材料中指明是否必须将有缺陷的部件返还给 HP。如果要求您将有缺陷的部件返还给 HP，那么您必须在规定期限内（通常是五 (5) 个工作日）将缺陷部件发给 HP。有缺陷的部件必须随所提供的发运材料中的相关文件一起返还。如果未能送还有缺陷的部件，HP 可能会要求您支付更换费用。客户自行维修时，HP 将承担所有相关运输和部件返回费用，并指定快递商/承运商。

有关 HP 客户自行维修计划的详细信息，请与您当地的服务提供商联系。有关北美地区的计划，请访问 HP 网站 (http://www.hp.com/go/selfrepair)。

客戶自行維修

HP 產品設計了許多「客戶自行維修」(CSR) 的零件以減少維修時間，並且使得更換瑕疵零件時能有更大的彈性。如果在診斷期間 HP（或 HP 服務供應商或維修夥伴）辨認出此項維修工作可以藉由使用 CSR 零件來完成，則 HP 將直接寄送該零件給您作更換。CSR 零件分為兩種類別：

- **強制的** — 客戶自行維修所使用的零件是強制性的。如果您要求 HP 更換這些零件，HP 將會向您收取此服務所需的外出費用與勞動成本。
- **選購的** — 客戶自行維修所使用的零件是選購的。這些零件也設計用於客戶自行維修之用。不過，如果您要求 HP 為您更換，則可能需要也可能不需要負擔額外的費用，端視針對此產品指定的保固服務類型而定。

備註：某些 HP 零件沒有消費者可自行維修的設計。為符合客戶保固，HP 需要授權的服務供應商更換零件。這些零件在圖示的零件目錄中，被標示為「否」。

基於材料取得及環境允許的情況下，CSR 零件將於下一個工作日以快遞寄送。在環境的允許下當天或四小時內送達，則可能需要額外的費用。若您需要協助，可致電「HP 技術支援中心」，會有一位技術人員透過電話來協助您。不論損壞的零件是否必須退回，HP 皆會在與 CSR 替換零件一起運送的材料中註明。若要將損壞的零件退回 HP，您必須在指定的一段時間內（通常為五 (5) 個工作天），將損壞的零件寄回 HP。損壞的零件必須與寄送資料中隨附的相關技術文件一併退還。如果無法退還損壞的零件，HP 可能要向您收取替換費用。針對客戶自行維修情形，HP 將負責所有運費及零件退還費用並指定使用何家快遞/貨運公司。

如需 HP 的「客戶自行維修」方案詳細資訊，請連絡您當地的服務供應商。至於北美方案，請參閱 HP 網站 (http://www.hp.com/go/selfrepair)。

고객 셀프 수리

HP 제품은 수리 시간을 최소화하고 결함이 있는 부품 교체 시 더욱 융통성을 발휘할 수 있도록 하기 위해 고객 셀프 수리(CSR) 부품을 다량 사용하여 설계되었습니다. 진단 기간 동안 HP(또는 HP 서비스 공급업체 또는 서비스 협력업체)에서 CSR 부품을 사용하여 수리가 가능하다고 판단되면 HP는 해당 부품을 바로 사용자에게 보내어 사용자가 교체할 수 있도록 합니다. CSR 부품에는 두 가지 종류가 있습니다.

- **고객 셀프 수리가 의무 사항인 필수 부품.** 사용자가 HP에 이 부품의 교체를 요청할 경우 이 서비스에 대한 출장비 및 작업비가 청구됩니다.
- **고객 셀프 수리가 선택 사항인 부품.** 이 부품들도 고객 셀프 수리가 가능하도록 설계되었습니다. 하지만 사용자가 HP에 이 부품의 교체를 요청할 경우 사용자가 구입한 제품에 해당하는 보증 서비스 유형에 따라 추가 비용 없이 교체가 가능할 수 있습니다.

참고: 일부 HP 부품은 고객 셀프 수리가 불가능하도록 설계되었습니다. HP는 만족스러운 고객 보증을 위해 공인 서비스 제공업체를 통해 부품을 교체하도록 하고 있습니다. 이러한 부품들은 Illustrated Parts Catalog에 "No"라고 표시되어 있습니다.

CSR 부품은 재고 상태와 지리적 조건이 허용하는 경우 다음 영업일 납품이 가능하도록 배송이 이루어집니다. 지리적 조건이 허용하는 경우 추가 비용이 청구되는 조건으로 당일 또는 4시간 배송이 가능할 수도 있습니다. 도움이 필요하시면 HP 기술 지원 센터로 전화하십시오. 전문 기술자가 전화로 도움을 줄 것입니다. HP는 결함이 발생한 부품을 HP로 반환해야 하는지 여부를 CSR 교체 부품과 함께 배송된 자료에 지정합니다. 결함이 발생한 부품을 HP로 반환해야 하는 경우에는 지정된 기간 내(통상 영업일 기준 5일)에 HP로 반환해야 합니다. 이 때 결함이 발생한 부품은 제공된 포장 재료에 넣어 관련 설명서와 함께 반환해야 합니다. 결함이 발생한 부품을 반환하지 않는 경우 HP가 교체 부품에 대해 비용을 청구할 수 있습니다. 고객 셀프 수리의 경우, HP는 모든 운송 및 부품 반환 비용을 부담하며 이용할 운송업체 및 택배 서비스를 결정합니다.

HP 고객 셀프 수리 프로그램에 대한 자세한 내용은 가까운 서비스 제공업체에 문의하십시오. 북미 지역의 프로그램에 대해서는 HP 웹 사이트(http://www.hp.com/go/selfrepair)를 참조하십시오.

Acronyms and abbreviations

AC

alternating current

AMP

Advanced Memory Protection

CSR

Customer Self Repair

iLO

Integrated Lights-Out

IML

Integrated Management Log

LFF

large form factor

NMI

nonmaskable interrupt

NVRAM

nonvolatile memory

PCIe

Peripheral Component Interconnect Express

POST

Power-On Self Test

RBSU

ROM-Based Setup Utility

RPS

redundant power supply

SAS

serial attached SCSI

SATA

serial ATA

SFF

small form factor

SID

Systems Insight Display

SIM

Systems Insight Manager

TPM

Trusted Platform Module

UEFI

Unified Extensible Firmware Interface

UID

unit identification

USB

universal serial bus

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